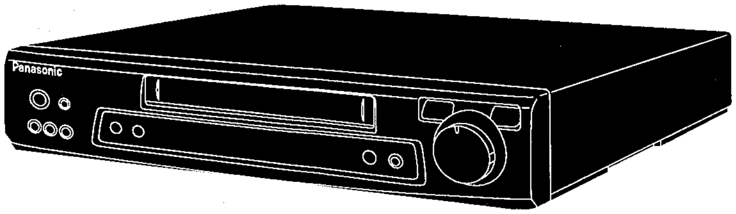
ORDER NO. VRD9706015C7

Service Manual

Video Cassette Recorder

Panasonic VHS NTSC HQ



NV-SD220PMP
NV-SD7020PX
NV-SD7040PX
NV-HD7060PX
NV-HD7070PX
NV-HD7080PX

SPECIFICATIONS

ITEM	SPECIFICATION	1	2	3	4	5
POWER	Source: 110/120/220/240V AC Auto, 50/60 Hz	○	○	○	○	○
	Consumption: Approx. 18 watts (Power on), Approx. 6 watts (Power off) Approx. 23 watts (Power on), Approx. 7 watts (Power off)	○ —	○ —	○ —	— ○	— ○
VIDEO	Head: 2 rotary heads helical scanning system 4 rotary heads helical scanning system	○ —	○ —	— ○	— ○	— ○
	Heads: rotary heads 1 pair for SP recording playback and trick play (L-R heads)	○	○	○	○	○
	Input Level: VIDEO IN Jack (Phono type) 1.0 Vp-p 75Ω unbalanced	○	○	○	○	○
	Output Level: VIDEO OUT Jack (Phono type) 1.0 Vp-p 75Ω unbalanced	○	○	○	○	○
AUDIO	Head: Normal Mono: 1 stationary head Hi-Fi Stereo: 2 rotary heads	○ —	○ —	○ —	○ ○	○ ○
	Input Level: AUDIO IN Jack (Phono type) -10 dBv 50kΩ unbalanced	○	○	○	○	○
	Output Level: AUDIO OUT Jack (Phono type) -8 dBv 600Ω unbalanced AUDIO OUT Jack (Phono type) -8 dBv 1kΩ unbalanced	○ —	○ —	○ —	— ○	— ○
	Frequency Response: Normal Mono: SP: 100 Hz ~ 8 kHz LP: 100 Hz ~ 6 kHz SLP: 100 Hz ~ 5 kHz Hi-Fi Stereo: SP/LP/SLP: 20 Hz ~ 20 kHz	○ ○ ○ —	○ ○ ○ —	○ ○ ○ —	○ ○ ○ ○	○ ○ ○ ○

ITEM	SPECIFICATION	1	2	3	4	5
RF OUT	CH 3/CH 4 switchable 72 dBμ (open voltage) 75Ω unbalanced	○	○	○	○	○
TELEVISION SYSTEM	EIA Standard (525 lines, 60 fields) NTSC Color Signal	○	○	○	○	○
	For USA TV Tuners: VHF input ch 2 ~ ch 13, cable channels "A" ~ "EEE", "A-5" ~ "A-1", "5A", 65 ~ 94, 100 ~ 125 UHF input ch 14 ~ ch 69	○	○	○	○	○
	For EUROPE TV Tuners: VHF input ch 2 ~ ch 13 (USA) UHF input ch 21 ~ ch 62 (C.C.I.R.)	—	○	○	○	○
TAPE SPEED	SP: 1-5/16 i.p.s (33.35 mm/sec), LP: 21/32 i.p.s (16.67 mm/sec), SLP: 7/16 i.p.s (11.12 mm/sec) Record/Playback Time: 8 Hrs with 160 min. type tape used in SLP mode FF/REW Time: Less than 3 min. (120 min. type tape)	○	○	○	○	○
TAPE FORMAT	Tape width 1/2"(12.7 mm) high density tape	○	○	○	○	○
DIMENSIONS	14-15/16"(380 mm)(W) X 3-2/3"(93 mm)(H) X 11-1/4"(286 mm)(D) 16-15/16"(430 mm)(W) X 3-7/8"(98 mm)(H) X 11-13/16"(300 mm)(D)	○ —	○ —	○ —	○ —	— ○
WEIGHT	7.5 lbs. (3.4 kg) 7.7 lbs. (3.5 kg)	○ —	○ —	○ —	○ —	— ○
STANDARD ACCESSORIES	1 pc. Remote Control 1 pc. Power Plug Adaptor 1 pc. RF Coaxial Cable	○	○	○	○	○

1. NV-SD220PMP
2. NV-SD7020PX
3. NV-SD7040PX
4. NV-HD7060PX
5. NV-HD7070PX/NV-HD7080PX

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

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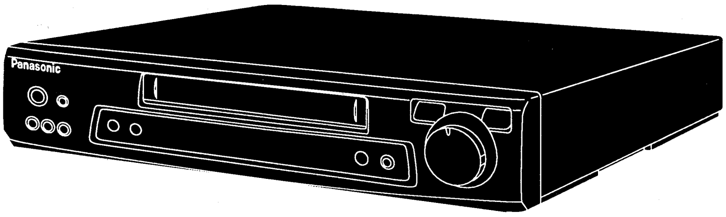

NV-SD220PMP
NV-SD7020PX
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VIDEO	Head: 2 rotary heads helical scanning system	○	○	—	—	—
	4 rotary heads helical scanning system	—	—	○	○	○
	Heads: rotary heads 1 pair for SP recording playback and trick play (L-R heads)	○	○	○	○	○
	Input Level: VIDEO IN Jack (Phono type) 1.0 Vp-p 75Ω unbalanced	○	○	○	○	○
	Output Level: VIDEO OUT Jack (Phono type) 1.0 Vp-p 75Ω unbalanced	○	○	○	○	○
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	Hi-Fi Stereo: 2 rotary heads	—	—	—	○	○
	Input Level: AUDIO IN Jack (Phono type) -10 dBv 50kΩ unbalanced	○	○	○	○	○
	Output Level: AUDIO OUT Jack (Phono type) -8 dBv 600Ω unbalanced	○	○	○	—	—
	AUDIO OUT Jack (Phono type) -8 dBv 1kΩ unbalanced	—	—	—	○	○
	Frequency Response: Normal Mono: SP: 100 Hz ~ 8 kHz	○	○	○	○	○
	LP: 100 Hz ~ 6 kHz	○	○	○	○	○
	SLP: 100 Hz ~ 5 kHz	○	○	○	○	○
	Hi-Fi Stereo: SP/LP/SLP: 20 Hz ~ 20 kHz	—	—	—	○	○

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TAPE FORMAT	Tape width 1/2"(12.7 mm) high density tape	○	○	○	○	○
DIMENSIONS	14-15/16"(380 mm)(W) X 3-2/3"(93 mm)(H) X 11-1/4"(286 mm)(D)	○	○	○	○	—
	16-15/16"(430 mm)(W) X 3-7/8"(98 mm)(H) X 11-13/16"(300 mm)(D)	—	—	—	—	○
WEIGHT	7.5 lbs. (3.4 kg)	○	○	○	○	—
	7.7 lbs. (3.5 kg)	—	—	—	—	○
STANDARD ACCESSORIES	1 pc. Remote Control 1 pc. Power Plug Adaptor 1 pc. RF Coaxial Cable	○	○	○	○	○

1. NV-SD220PMP
2. NV-SD7020PX
3. NV-SD7040PX
4. NV-HD7060PX
5. NV-HD7070PX/NV-HD7080PX

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

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SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. **IMPORTANT SAFETY NOTICE**
   There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.
2. An Isolation Transformer should always be used during the servicing of VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect VCR from being damaged by accidental shooting that may occur during servicing.
3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1M ohm and 5.2M ohm. When the exposed metal does not have a return path to the chassis, the reading must be infinity.

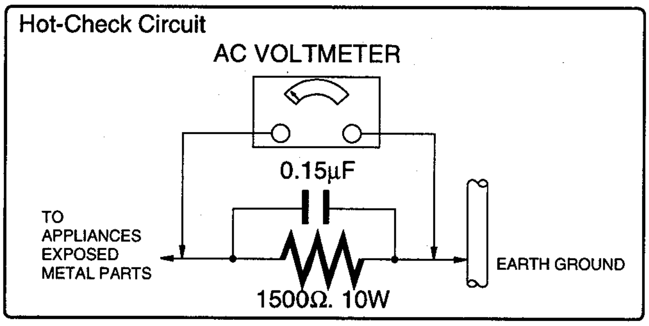


Figure 1

LEAKAGE CURRENT HOT CHECK (See figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5K ohm, 10 watts resistor, in parallel with a 0.15 microfarad capacitor, between each exposed metallic part on the set and a good earth ground, as shown in figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks. Leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits, some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should remove electrostatic charge for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

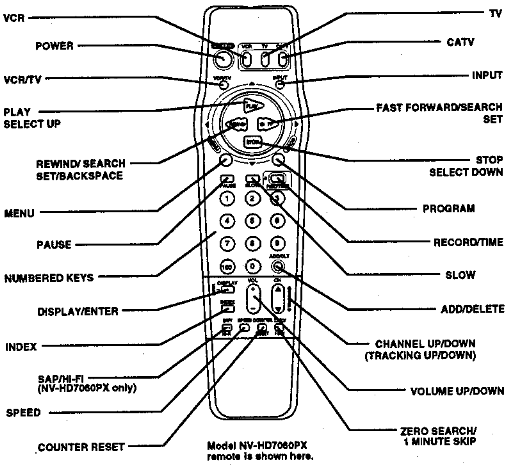
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

"NOTE to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical".

OPERATION GUIDE

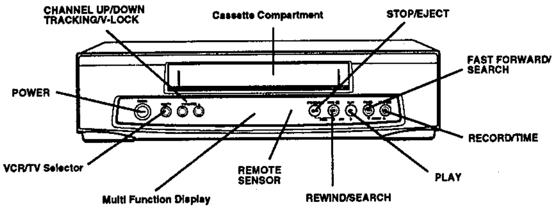
Location of Controls (For Models NV-SD220PMP/NV-SD7020PX/NV-SD7040PX/NV-HD7060PX)

Remote Control Buttons

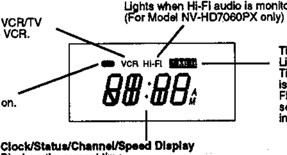

VCR
POWER
VCR/TV
PLAY
SELECT UP
REWIND/ SEARCH
SET/BACKSPACE
MENU
PAUSE
NUMBERED KEYS
DISPLAY/ENTER
INDEX
SAP/HI-FI
(NV-HD7060PX only)
SPEED
COUNTER RESET
TV
CATV
INPUT
FAST FORWARD/SEARCH
SET
STOP
SELECT DOWN
PROGRAM
RECORD/TIME
SLOW
ADD/DELETE
CHANNEL UP/DOWN
(TRACKING UP/DOWN)
VOLUME UP/DOWN
ZERO SEARCH/
1 MINUTE SKIP

Model NV-HD7060PX remote is shown here.

Front View of the VCR


CHANNEL UP/DOWN
TRACKING/V-LOCK
Cassette Compartment
STOP/EJECT
FAST FORWARD/
SEARCH
POWER
RECORD/TIME
VCR/TV Selector
REMOTE
SENSOR
PLAY
Multi Function Display
REWIND/SEARCH

Multi Function Display


VCR HI-FI
88:88
A
M

VCR Indicator
Lights when the VCR/TV selector is set to VCR.

Hi-Fi Indicator
Lights when Hi-Fi audio is monitored or played back.
(For Model NV-HD7060PX only)

Timer Indicator
Lights when the VCR is set for a Timer Recording, or when a length is set for a normal recording.
Flashes when a Timer Recording is set, but a tape has not been inserted into the VCR.

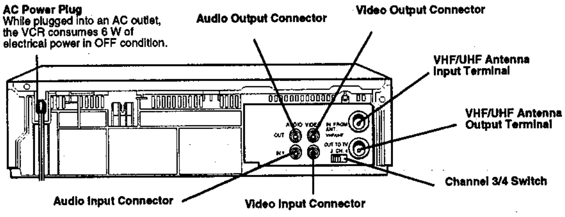
Power Indicator
Lights when power is on.

Clock/Status/Channel/Speed Display
Displays the current time.
Briefly displays VCR status when a function button is pushed.
Briefly displays the channel number, or "L" when a channel or line input is selected.
Briefly displays the recording speed when SPEED is pushed.

Rear View of the VCR

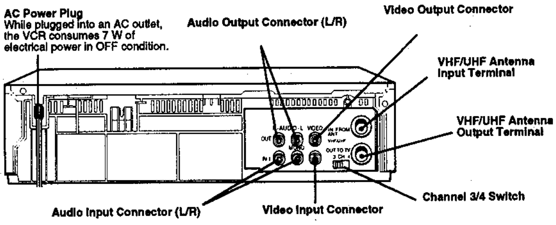
- **For Models NV-SD220PMP/NV-SD7020PX/NV-SD7040PX**

AC Power Plug
While plugged into an AC outlet, the VCR consumes 6 W of electrical power in OFF condition.


Audio Output Connector
Video Output Connector
VHF/UHF Antenna
Input Terminal
VHF/UHF Antenna
Output Terminal
Channel 3/4 Switch
Audio Input Connector
Video Input Connector

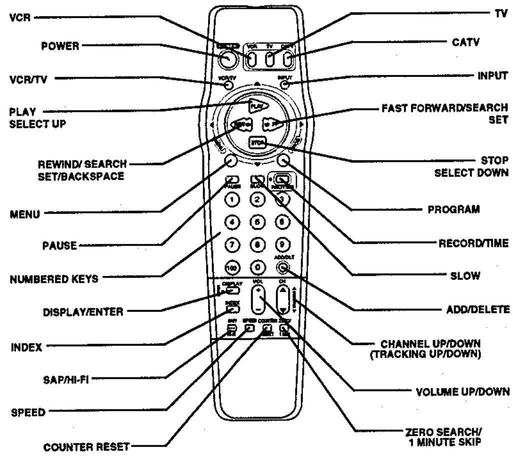
- **For Model NV-HD7060PX**

AC Power Plug
While plugged into an AC outlet, the VCR consumes 7 W of electrical power in OFF condition.

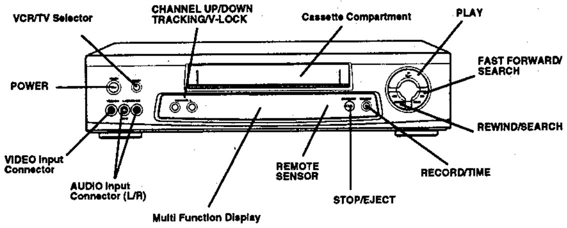

Audio Output Connector (L/R)
Video Output Connector
VHF/UHF Antenna
Input Terminal
VHF/UHF Antenna
Output Terminal
Channel 3/4 Switch
Audio Input Connector (L/R)
Video Input Connector

Location of Controls (For Model NV-HD7070PX)

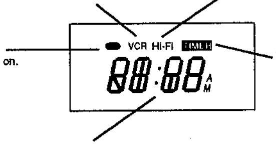
Remote Control Buttons


VCR
POWER
VCR/TV
PLAY
SELECT UP
REWIND/ SEARCH
SET/BACKSPACE
MENU
PAUSE
NUMBERED KEYS
DISPLAY/ENTER
INDEX
SAP/HI-FI
SPEED
COUNTER RESET
TV
CATV
INPUT
FAST FORWARD/SEARCH
SET
STOP
SELECT DOWN
PROGRAM
RECORD/TIME
SLOW
ADD/DELETE
CHANNEL UP/DOWN
(TRACKING UP/DOWN)
VOLUME UP/DOWN
ZERO SEARCH/
1 MINUTE SKIP

Front View of the VCR


VCR/TV Selector
CHANNEL UP/DOWN
TRACKING/V-LOCK
Cassette Compartment
PLAY
FAST FORWARD/
SEARCH
POWER
REWIND/SEARCH
VIDEO Input
Connector
AUDIO Input
Connector (L/R)
REMOTE
SENSOR
RECORD/TIME
STOP/EJECT
Multi Function Display

Multi Function Display


VCR HI-FI TIMER
88:88
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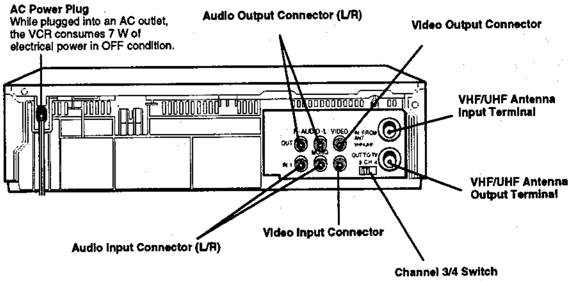
Flashes when a Timer Recording is set, but a tape has not been inserted into the VCR.

Clock/Status/Channel/Speed Display
Displays the current time.
Briefly displays VCR status when a function button is pushed.
Briefly displays the channel number, or "L1" or "L2" when a channel or line input is selected.
Briefly displays the recording speed when SPEED is pushed.

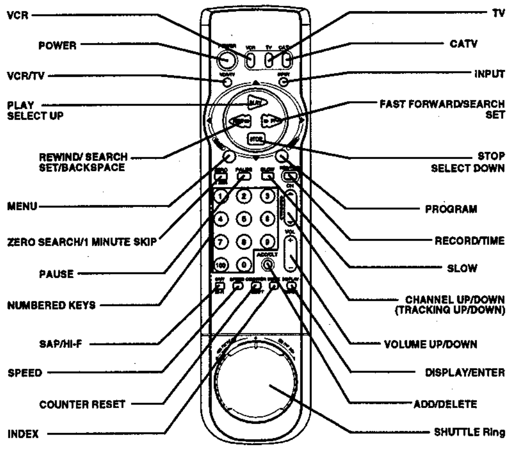
Rear View of the VCR

AC Power Plug
While plugged into an AC outlet, the VCR consumes 7 W of electrical power in OFF condition.

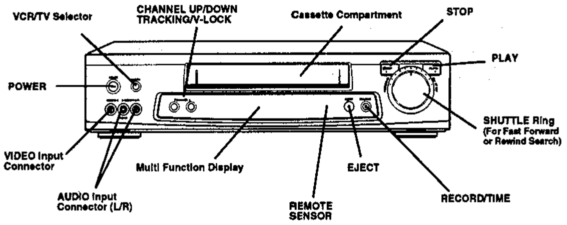

Audio Output Connector (L/R)
Video Output Connector
VHF/UHF Antenna
Input Terminal
VHF/UHF Antenna
Output Terminal
Video Input Connector
Audio Input Connector (L/R)
Channel 3/4 Switch

Location of Controls (For Model NV-HD7080PX)

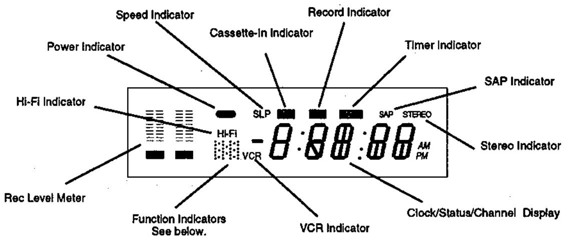
Remote Control Buttons


VCR
POWER
VCR/TV
PLAY
SELECT UP
REWIND/ SEARCH
SET/BACKSPACE
MENU
ZERO SEARCH/1 MINUTE SKIP
PAUSE
NUMBERED KEYS
SAP/HI-F
SPEED
COUNTER RESET
INDEX
TV
CATV
INPUT
FAST FORWARD/SEARCH
SET
STOP
SELECT DOWN
PROGRAM
RECORD/TIME
SLOW
CHANNEL UP/DOWN
(TRACKING UP/DOWN)
VOLUME UP/DOWN
DISPLAY/ENTER
ADD/DELETE
SHUTTLE Ring

Front View of the VCR

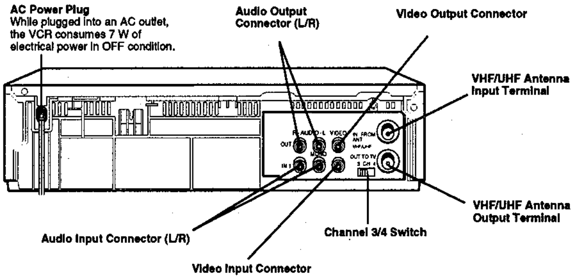

VCR/TV Selector
CHANNEL UP/DOWN
TRACKING/V-LOCK
Cassette Compartment
STOP
PLAY
POWER
SHUTTLE Ring
(For Fast Forward or Rewind Search)
VIDEO Input Connector
AUDIO Input Connector (L/R)
Multi Function Display
EJECT
REMOTE SENSOR
RECORD/TIME

Multi Function Display


Speed Indicator
Record Indicator
Cassette-In Indicator
Power Indicator
Timer Indicator
SAP Indicator
Hi-Fi Indicator
SLP
SAP
STEREO
Hi-Fi
VCR
AM
PM
Stereo Indicator
Rec Level Meter
Function Indicators
See below.
VCR Indicator
Clock/Status/Channel Display

Play/ Slow/ Frame Advance ▷	**Reverse Play (Slow/ Frame Advance)** ◁	**Rewind/ Rewind Search** ◁	**Fast Forward/ Fast Forward Search** ▷
Record ▷ ■	**Record/ Pause** ‖ ■	**Still** ‖	**Eject** ‖

Rear View of the VCR


AC Power Plug
While plugged into an AC outlet, the VCR consumes 7 W of electrical power in OFF condition.

Audio Output Connector (L/R)
Video Output Connector
VHF/UHF Antenna Input Terminal
VHF/UHF Antenna Output Terminal
Channel 3/4 Switch
Audio Input Connector (L/R)
Video Input Connector

Additional Connections

CATV(Cable) Connections

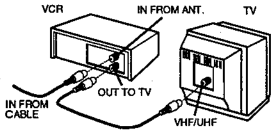
All connections on this page are made with 75 Ohm coaxial cables.

Without a Converter/Descrambler Box

You can:

1) Use your VCR Remote Control to select channels.
2) Program one or more unscrambled channels for unattended recording.

You cannot:
record or view scrambled channels with this connection.

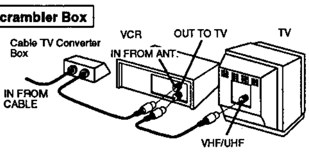

VCR
IN FROM ANT.
TV
OUT TO TV
IN FROM CABLE
VHF/UHF

With a (CABLE to VCR) Converter/Descrambler Box

You can:

1) Record and view any channel including scrambled channels; channel selection must be made at the Cable TV Converter Box.
2) Program one channel for unattended recording.

You cannot:
select channels from VCR or TV.

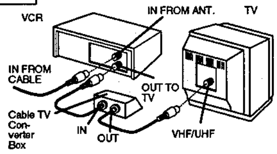

Cable TV Converter Box
VCR
OUT TO TV
TV
IN FROM ANT.
IN FROM CABLE
VHF/UHF

With a (VCR to TV) Converter/Descrambler Box

You can:

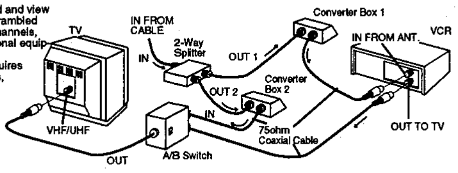
1) Use your VCR Remote Control to select channels.
2) Program unattended recordings of more than one unscrambled channel.

You cannot:
record scrambled channels with this connection.


VCR
IN FROM ANT.
TV
IN FROM CABLE
OUT TO TV
Cable TV Con-verter Box
IN
OUT
VHF/UHF

With Two Converter/Descrambler Boxes

If you want to record and view a combination of scrambled and unscrambled channels, you will need additional equipment.
This connection requires two converter boxes, an A/B switch, and a 2-way splitter as shown here.

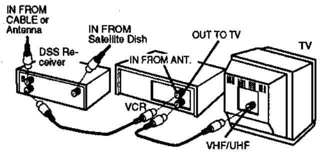

TV
IN FROM CABLE
IN
2-Way Splitter
OUT 1
Converter Box 1
IN FROM ANT.
VCR
OUT 2
Converter Box 2
IN
VHF/UHF
75ohm Coaxial Cable
OUT TO TV
OUT
A/B Switch

With a DSS Receiver

You can:

1) Record and view any channel including scrambled channels; channel selection must be made at the DSS Receiver.
2) Program one channel for unattended recording.

NOTE: The DSS receiver must be turned off to view programs from a cable box or antenna. See the DSS manual for details.

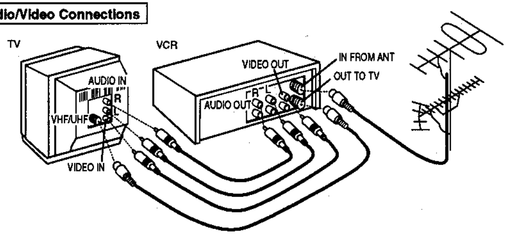

IN FROM CABLE or Antenna
IN FROM Satellite Dish
OUT TO TV
TV
DSS Re-ceiver
IN FROM ANT.
VCR
VHF/UHF

**DSS® is a registered trademark of DIRECTV, INC., a unit of GM Hughed Electronics.

Audio/Video Connections

If your TV has AUDIO IN and VIDEO IN terminals, you can connect your VCR to them to receive a higher quality picture and sound. If your TV is not stereo, you can connect a stereo amplifier to the VCR to enjoy stereo sound.

Audio/Video Connections


TV
VCR
AUDIO IN
R
L
VHF/UHF
VIDEO IN
VIDEO OUT
AUDIO OUT
IN FROM ANT
OUT TO TV

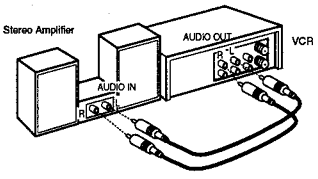
1 Connect the VIDEO OUT terminal on the VCR to the VIDEO IN terminal of your TV.
2 Connect the "L" and "R" AUDIO OUT terminals on the VCR to the "L" and "R" AUDIO IN terminals of your TV.
3 Set the VIDEO/TV selector of your TV (Monitor/Receiver) to "VIDEO."

NOTE: To use your TV as a VCR monitor, set the VIDEO/TV selector on the TV (Monitor/Receiver) to "VIDEO." Use the L Audio In jack for proper sound reproduction when connecting to a monaural TV.

Stereo Amplifier Connections

When you connect your VCR to a Stereo Component System, you can view the picture from the VCR while enjoying stereo from your audio system.

Connect the "L" and "R" AUDIO OUT terminals on the VCR to the "L" and "R" AUDIO IN terminals of your stereo.


Stereo Amplifier
AUDIO OUT
VCR
AUDIO IN
R
L

Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC in USA (and to the Canadian Electrical Code in Canada) that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

One Time VCR Setup

The setup is vital for proper VCR operation.
Please read the instructions carefully and in the order presented.

NOTE: These first two pages contain reference material needed for setup.
Please look over the information before you begin setup procedure.

Setup Overview
You will be performing the following tasks:

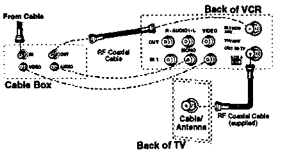
- Setting the language you want on-screen displays to appear in (English, Spanish, French).
- Telling the VCR what kind of equipment you are using to receive channels and how it is connected.
- Entering pertinent cable box or DSS receiver information if used.
- Entering a local PBS channel so that the VCR can receive auto clock set data. (Not available in all areas.)
- Placing channels in memory and setting the clock.

Please Note Which Connection Type You are Using.

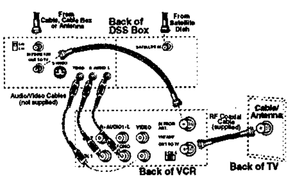
Make sure all equipment is hooked up as described.
The diagrams below illustrate some of the basic connection types.
Confirm which type you used for later reference.

Connection Type 1

A.<CABLE BOX ->VCR ->TV>

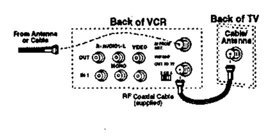


B.<ANT/CABLE BOX ->DSS BOX ->VCR ->TV>

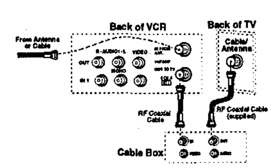

From Cable, Cable Box or Antenna
Back of DSS Box
From Satellite Dish
Audio/Video Cables (not supplied)
RF Coaxial Cable (supplied)
Cable/ Antenna
Back of VCR
Back of TV

Connection Type 2

C.<VCR ->TV>



D.<VCR ->CABLE BOX ->TV>



ONE TIME SETUP IMPORTANT NOTES:

- For detailed DSS receiver connection instruction, please see your DSS operating manual.
- The DSS receiver must be turned off to view programs from the cable box or antenna.
- *If you use a DSS receiver, it must be turned off for auto clock set.*
- If your cable box is not remote controllable, it must be tuned to your PBS channel.
- If you use Audio/Video Jack connection between the VCR and cable box or DSS receiver, you must also connect the RF coaxial cable in order to use the auto clock set and channel auto set features.

Cable Box/ DSS Receiver Code Number List

If your cable box or DSS receiver is remote controllable, refer to this list during setup.

Cable Box

Brand	Code Numbers
Archer	01, 29, 44, 88, 91
Cableview	30, 42, 44, 52, 63, 88
Citizen	30, 42, 44, 52, 63, 88
Curtis	08, 09, 56, 61, 87, 90
Diamond	01, 29, 44, 88, 91
Drake	37, 67, 71
Eagle	13, 20, 22, 26, 40, 58, 62
Eastern	28
GC Brand	30, 42, 44, 52, 63, 88
Gemini	04, 85
General Electric	57
General Instruments	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Hamlin	14, 15, 28, 41
Hitachi	31, 79
Jerrold	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Macom	31, 79
Magnavox	25, 26
Movietime	29, 32, 38, 39, 40, 42, 44, 88
NSC	32, 38, 40
Oak	11, 46
Panasonic	16, 17
Philips	13, 20, 23, 24, 96
Pioneer	05, 06, 78
Pulsar	30, 42, 44, 52, 63, 88
RCA	16, 17
Realistic	44, 51, 88
Regal	14, 41
Regency	28
Rembran	29, 32, 39, 42, 44, 88
Salora	68, 72
Samsung	32, 40, 42, 78, 94
Scientific Atlantic	08, 09, 56, 61, 87, 90
Sheritech	27
SL Marx	32, 40, 42, 78, 94
Spucer	16, 17
Stargate	30, 32, 40, 42, 44, 52, 63, 78, 88, 94
Sylvania	19
Telecaption	77, 92
Teknika	74
Teleview	32, 40, 42, 78, 94
Texscan	18, 19
Tocom	01, 33, 34, 42, 48, 49, 91
Toshiba	36
Uniden Satellite	65, 69
Unika	01, 29, 44, 88, 91
Universal	42, 43, 44, 52, 63, 88
Viewstar	13, 20, 22, 26, 40, 58, 62
Vid Tech	64
Vidter	64
Videoway	07, 23, 50
Zenith	07, 23, 50

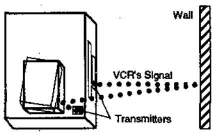
DSS (Digital Satellite System Receiver)

Brand	Code Numbers
Sony	98
RCA	99
Panasonic	100

Note: During setup you will be instructed to enter your brand code number. As some brands have multiple codes, it may be necessary to try different codes to attain the proper results.
These codes are for Cable box or DSS Box setup for Auto Clock and VCR Plus+ recording only.

Positioning Your Cable Box or DSS Receiver

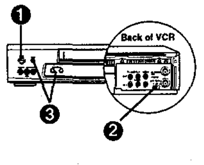
If your cable box or DSS receiver is remote controllable, place it on or near the VCR as shown in the example below. The VCR transmits an infrared signal from two locations. Be sure not to cover the transmitter windows.

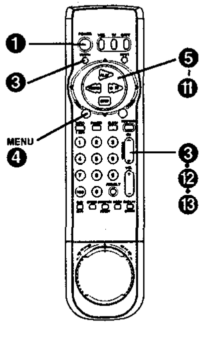


One Time VCR Setup (continued)

When the VCR power is first turned on, the language select screen appears automatically. Follow along in the manual as you are guided through the setup procedure on the screen.

Check list before you begin.
☐ All TV and VCR connections are made.





Using ▲▼ ◀▶ keys

Whenever a menu or program screen is displayed, the PLAY, STOP, REWIND, and FF buttons on the remote control function as ▲▼ ◀▶ only.
For play, stop, rewind, and fast forward functions, use the buttons on the VCR.

On Screen Language, Cable/ DSS Receiver Setup, Channels Memory, and Auto Clock

❶ Turn TV and VCR on.

❷ Tune TV to VCR output channel (the same one you set on the back of the VCR: CH3 or CH4).

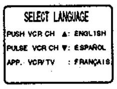
❸ Push CH ▲ for English on-screen displays.

or

Push CH ▼ for Spanish on-screen displays.

or

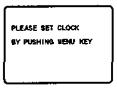
Push VCR/TV for French on-screen displays.



SELECT LANGUAGE
PUSH VCR CH ▲: ENGLISH
PULSE VCR CH ▼: ESPAÑOL
APP. VCR/TV : FRANÇAIS

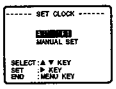
- **If wrong language is set,** see the "Reset all VCR Memory Functions" section.

- You can also set the language using the buttons on the VCR.
- The VCR should be connected to an antenna or cable box.



PLEASE SET CLOCK
BY PUSHING MENU KEY

❹ Push MENU within 1 minute to display the SET CLOCK screen.



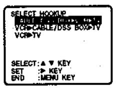
------ SET CLOCK ------
[illegible]
MANUAL SET
SELECT : ▲ ▼ KEY
SET : ▶ KEY
END : MENU KEY

❺ Push ▲▼ and ▶ to select and set "AUTO SET" or "MANUAL SET."

- If you selected "AUTO SET," continue with step 6. If you selected "MANUAL SET," go to the "Manual Clock Set" section (steps 2 and 3).

❻ Push ▲▼ to select your hookup, and then push ▶ to set.

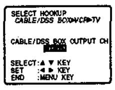
- If you selected CABLE/DSS BOX ▶VCR▶TV, continue with step 5. If not, go to Alternate Instructions.



SELECT HOOKUP
[illegible]
VCR▶CABLE/DSS BOX▶TV
VCR▶TV
SELECT : ▲ ▼ KEY
SET : ▶ KEY
END : MENU KEY

❼ Push ▲▼ to select your cable box or DSS receiver output channel number, and then push ▶ to enter.

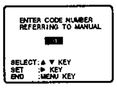
- If necessary, refer to your cable box manual.
- If both a cable box and DSS receiver are used, set the output channel of the DSS receiver.
- If you are using Audio/Video jack connections to your cable box, select and set "VIDEO OUT" as the output channel.



SELECT HOOKUP
CABLE/DSS BOX▶VCR▶TV
CABLE/DSS BOX OUTPUT CH
[illegible]
SELECT : ▲ ▼ KEY
SET : ◀ ▶ KEY
END : MENU KEY

❽ Push ▲▼ to select your cable box or DSS receiver code number, and then push ▶ to enter. (Refer to the list.)

- If your cable box or DSS receiver doesn't have a remote control, select "NO REMOTE." Then, go to Alternate Instructions.
- This determines whether the VCR will control your cable box or DSS receiver.

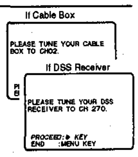


ENTER CODE NUMBER
REFERRING TO MANUAL
[illegible]
SELECT : ▲ ▼ KEY
SET : ▶ KEY
END : MENU KEY

❾ If you use a cable box, tune it to channel 02.
If you use a DSS receiver, tune it to channel 270.

Push ▶ to continue.

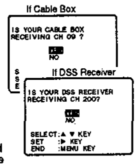
- "NOW TRANSMITTING" appears.



If Cable Box
PLEASE TUNE YOUR CABLE BOX TO CH02.

If DSS Receiver
PLEASE TUNE YOUR DSS RECEIVER TO CH 270.
PROCEED : ▶ KEY
END : MENU KEY

❿ Push ▲▼ to select "YES" or "NO," and then push ▶ to enter.



If Cable Box
IS YOUR CABLE BOX RECEIVING CH 09 ?
[illegible]
NO

If DSS Receiver
IS YOUR DSS RECEIVER RECEIVING CH 200?
[illegible]
NO
SELECT : ▲ ▼ KEY
SET : ▶ KEY
END : MENU KEY

If you use a cable box and selected "YES," go to step 11.

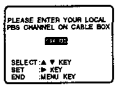
If you use a DSS receiver and selected "YES," go to the "Alternate Instructions."

If you selected "NO," the screen in step 8 will reappear.
Try entering a different code assigned to your brand and/ or repositioning the equipment.

If the answer is still "NO," cable box or DSS receiver control is not available. Push MENU and go to the "Alternate Instructions."

Confirm that your cable box is on and that your DSS receiver is off.

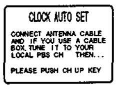
⓫ Push ▲▼ to select your local PBS channel number you receive on your cable box, and then push ▶ to display the "CLOCK AUTO SET" screen.



PLEASE ENTER YOUR LOCAL PBS CHANNEL ON CABLE BOX
[illegible]
SELECT : ▲ ▼ KEY
SET : ▶ KEY
END : MENU KEY

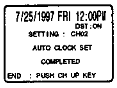
⓬ Push CH ▲ to start Auto Clock Set.

- If you live near a different time zone, be sure to enter the PBS channel in your time zone.
- "AUTO CLOCK SET PROCEEDING" appears.



CLOCK AUTO SET
CONNECT ANTENNA CABLE AND IF YOU USE A CABLE BOX, TUNE IT TO YOUR LOCAL PBS CH THEN...
PLEASE PUSH CH UP KEY

⓭ This display appears when auto clock set is completed. Confirm that the time is correct and push CH ▲ to exit.



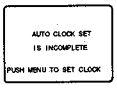
7/25/1997 FRI 12:00PM
DST : ON
SETTING : CH02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

If the Auto Clock Set displayed time is incorrect...

If you use a cable box and receive more than one PBS station, try auto clock set again. Follow the "To Set or Reset Auto Clock Set" section and when the instructions call for you to enter a PBS station, enter the one you have not tried yet.

If "AUTO CLOCK SET IS INCOMPLETE" appears...

The screen below will appear on-screen if auto clock set data is not available in your area.



AUTO CLOCK SET
IS INCOMPLETE
PUSH MENU TO SET CLOCK

Push MENU to display the manual clock set screen. (See the "Manual Clock Set" section.)

Note:
If you use a cable box and receive more than one PBS station, you may exit the manual clock set screen and try auto clock set again.
Follow the "Set or Reset Auto Clock Set" section and when the instructions call for you to enter a *PBS station, enter the one you* have not tried yet.

NOTE
- Auto clock set will be performed when the *VCR is turned off the first* time each day. If you use a cable box and you want auto clock set to be performed, the cable box must be left on and tuned to the PBS channel before the VCR power is turned off.

One Time VCR Setup (continued)

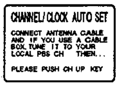
Alternate Instructions

Complete the following steps if, any of the following applies:

- **A** You selected connection type 2 (VCR▶CABLE/DSS BOX▶TV or VCR▶TV) in step 6.
- **B** You selected "NO REMOTE" in step 8 (your cable box or DSS receiver is not remote controllable).
- **C** You use a DSS receiver and selected "YES" in step 10.
- **D** Cable Box or DSS receiver could not be controlled in step 10.

❶ Turn on the cable box and set it to the local PBS channel.

- If you live near a different time zone, make sure to set the channel in your time zone.
- If you use a DSS receiver, it must be turned off.

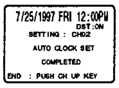


```
CHANNEL/CLOCK AUTO SET
CONNECT ANTENNA CABLE
AND IF YOU USE A CABLE
BOX, TUNE IT TO YOUR
LOCAL PBS CH    THEN...
PLEASE PUSH CH UP KEY
```

❷ Push CH ▲ to start Channel Auto Set and Auto Clock Set.

- The following messages appear.
  "CH AUTO SET PROCEEDING"
  "AUTO CLOCK SET PROCEEDING"

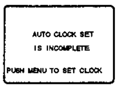
This screen appears to confirm that auto clock set is completed.



```
7/25/1997 FRI 12:00PM
              DST:ON
SETTING : CH02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY
```

❸ Confirm that the time is correct and push CH ▲ to exit this screen.

If this screen appears, auto clock set is not available in your area. Please set the clock manually as described at right.

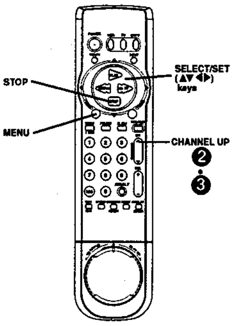


```
AUTO CLOCK SET
IS INCOMPLETE
PUSH MENU TO SET CLOCK
```

If the displayed auto clock set time and D.S.T. are not correct

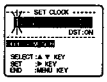
If you live close to two different time zones, the VCR may recognize the wrong PBS station as the setting channel.
If this happens, please complete the following steps.

1. Make a note of the SETTING: CH number shown on screen and push CH ▲ to exit.
2. Delete the setting channel from channel memory. (See the "To Add or Delete a Channel" section.)
3. Push MENU to display the menu.
4. Push ▲▼ to select "SET CLOCK," and then push ▶ to display the "SET CLOCK" screen.
5. Push ▲▼ and ▶ to select and set "AUTO SET."
6. Follow the One Time VCR Setup instructions.
   - If you use a cable box and have multiple PBS stations, tune the cable box to a different PBS station and try auto clock set again using the menu.



Manual Clock Set

1. Push MENU to display the SET CLOCK screen.

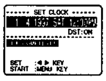


```
------ SET CLOCK ------
                DST:ON
SELECT :▲ ▼ KEY
SET    :▶ KEY
END    :MENU KEY
```

2. Push ▲▼ and ◀▶ to select and set the month, date, year, time, and D.S.T. (Daylight Saving Time).

To Make Corrections, repeatedly push ◀▶ to move the cursor to the incorrect entry and make the correction.

3. Push MENU twice to start the clock and exit this mode.

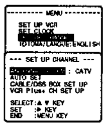


```
------ SET CLOCK ------
                DST:ON
SET   :◀ ▶ KEY
START :MENU KEY
```

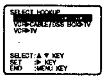
To Change Antenna System and Channels in Memory

Example, if you have cable installed, etc. This VCR is capable of receiving channels with the US or the European C.C.I.R. standards. The reception of channels in charts shown here are based on menu screen for Tuning System you have chosen and depend on proper cable connections being made between the TV, VCR and antenna.

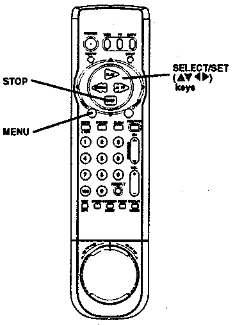
1. Push MENU to display the menu.
2. Push ▲▼ to select "SET UP CHANNEL," and then push ▶ to display the "SET UP CHANNEL" screen.
3. Push ▲▼ to select "ANTENNA SYSTEM," and then push ▶ to set your antenna system (TV, CATV or EUROPE).
4. Push ▲▼ to select "AUTO SET," and then push ▶ to display the "SELECT HOOKUP" screen.
   - See below for channel chart of USA and EUROPE.
5. Follow the One Time VCR Setup instructions.
   - To exit this mode, push MENU twice.
   - Clock Auto Set will be performed when channels are replaced in memory. To cancel, push STOP when "AUTO CLOCK SET PROCEEDING" appears on-screen.



```
--------- MENU ---------
SET UP VCR
SET CLOCK
IDIOMA/LANGUE:ENGLISH
--- SET UP CHANNEL ---
          : CATV
AUTO SET
CABLE/DSS BOX SET UP
VCR Plus+ CH SET UP
SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :MENU KEY
```



```
SELECT HOOKUP
VCR▶CABLE/DSS BOX▶TV
VCR▶TV
SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :MENU KEY
```



Antenna System in Europe

Select the "EUROPE" antenna system on the screen. Use channel auto set for the UHF and VHF bands. In channel auto set, the antenna system is automatically set to the "TV" mode. This will allow you to receive C.C.I.R. broadcast such as AFN.

TV Brand — Channel Chart

Selected Channel Indication	Channel Band designations	Channel Received off the Air
02~13	VHF	2~13 (USA)
21~62	UHF	21~62 (C.C.I.R.)

Antenna System in USA

Your VCR is capable of receiving the OFF-THE AIR and Cable broadcasts available in your area from the standard U.S. reception system.

TV Brand — Channel Chart

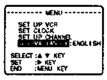
Selected Channel Indication	Channel Band de signations	Channel Received off the Air
02~13	VHF	2~13
14~69	UHF	14~69

Cable Brand — Channel Chart

Selected Channel Indication	Channel Band designations	Channel Received off the Air
02~13	Broadcast VHF	2~13
14~36	CATV Mid/Super Bands	A~W
37~64	CATV Hyper Band	2~13
65~94 100~125	Ultra Band	65~94 100~125
95~99	CATV Low band	A-5~A-1
01	Special CATV Channel	5A (between 4 and 5)

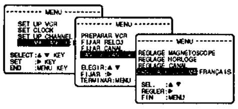
To Change On Screen Display Language

1. Push MENU to display the menu.
2. Push ▲▼ to select the language.
   English: LANGUAGE
   Spanish: IDIOMA
   French: LANGUE



```
--------- MENU ---------
SET UP VCR
SET CLOCK
SET UP CHANNEL
              :ENGLISH
SELECT :▲ ▼ KEY
SET    :▶ KEY
END    :MENU KEY
```

3. Push ▶ repeatedly to change the language.

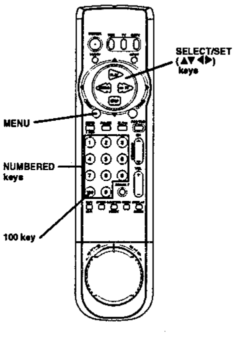


```
--------- MENU ---------
SET UP VCR
SET CLOCK
SET UP CHANNEL
SELECT :▲ ▼ KEY
SET    :▶ KEY
END    :MENU KEY

--------- MENU ---------
PREPARAR VCR
FIJAR RELOJ
FIJAR CANAL
ELEGIR:▲ ▼
FIJAR :▶
TERMINAR:MENU

--------- MENU ---------
REGLAGE MAGNETOSCOPE
REGLAGE HORLOGE
REGLAGE CANAL
              FRANÇAIS
SEL.   :▲ ▼
REGLER:▶
FIN    :MENU
```

4. Push MENU to exit this mode.

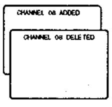
> **NOTE**
> - Normal TV or Cable channels are automatically selected and placed in memory depending on how your VCR is hooked up.

One Time VCR Setup (continued)



To Add or Delete a Channel

1. Select a channel using the NUMBERED keys to add or CH ▲/▼ to delete.



```
CHANNEL 08 ADDED
CHANNEL 08 DELETED
```

2. Push ADD/DLT to add or delete the channel.
   - To select a channel once it's deleted, use the NUMBERED keys on the remote control. Deleted channels will flash in the Multi Function Display on the VCR when selected.

When Using the 100 key

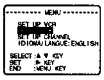
When selecting CATV channels 100 to 125 with the NUMBERED keys, first push the 100 key and then enter the remaining two digits.
For example, to select channel 125:
Push NUMBERED keys 100, then 2, then 5.

> **NOTES**
> - This VCR will accurately maintain its calendar up to Dec. 31, 2015, 11:59PM.
> - If you change your cable box or DSS receiver, please perform the "To Set or Reset Auto Clock Set" section above.

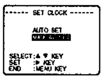
To Set or Reset the Clock

In case the clock is wrong, or a power failure occurred.

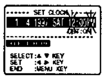
1. Push MENU to display the menu.
2. Push ▲▼ to select "SET CLOCK," and then push ▶ to display the "SET CLOCK" screen.
3. Push ▲▼ to select "MANUAL SET," and then push ▶ to display the SET CLOCK screen.
4. Push ▲▼ and ◀▶ to select and set the date, time, and D.S.T. (Daylight Saving Time).
5. Push MENU twice to start the clock and exit this mode.



```
--------- MENU ---------
SET UP VCR
SET UP CHANNEL
IDIOMA/LANGUE:ENGLISH
SELECT :▲ ▼ KEY
SET    :▶ KEY
END    :MENU KEY
```



```
------ SET CLOCK ------
AUTO SET
SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :MENU KEY
```



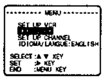
```
------ SET CLOCK ------
1  4 1997 SAT 12:00PM
                DST:ON
SELECT:▲ ▼ KEY
SET   :◀ ▶ KEY
END   :MENU KEY
```

To Set or Reset Auto Clock Set

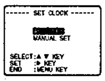
Complete the following steps if:

- Auto clock set displayed time was incorrect.
- Auto clock set was not available at first, but has since become available.
- The PBS channel over which clock data is sent was changed by the broadcast company.

1. Push MENU to display the menu.
2. Push ▲▼ to select "SET CLOCK," and then push ▶ to display the "SET CLOCK" screen.
3. Push ▲▼ and ▶ to select and set "AUTO SET."
4. Follow the One Time VCR Setup instructions.



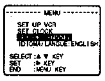
```
--------- MENU ---------
SET UP VCR
SET UP CHANNEL
IDIOMA/LANGUE:ENGLISH
SELECT :▲ ▼ KEY
SET    :▶ KEY
END    :MENU KEY
```



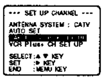
```
------ SET CLOCK ------
MANUAL SET
SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :MENU KEY
```

To setup the VCR in case a cable box or DSS receiver was installed or replaced

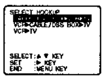
1. Push MENU to display the menu.
2. Push ▲▼ to select "SET UP CHANNEL," and then push ▶ to display the "SET UP CHANNEL" screen.
3. Push ▲▼ to select "CABLE/DSS BOX SET UP," and then push ▶ to display the "SELECT HOOKUP" screen.
   - To exit this mode, push MENU three times.
4. Push ▲▼ and ▶ to select and set "CABLE/DSS BOX▶VCR ▶ TV," and then continue with steps 7~10.



```
--------- MENU ---------
SET UP VCR
SET CLOCK
IDIOMA/LANGUE:ENGLISH
SELECT :▲ ▼ KEY
SET    :▶ KEY
END    :MENU KEY
```



```
--- SET UP CHANNEL ---
ANTENNA SYSTEM : CATV
AUTO SET
VCR Plus+ CH SET UP
SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :MENU KEY
```

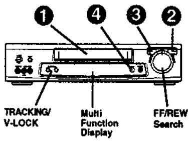


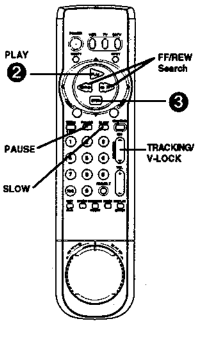
```
SELECT HOOKUP
VCR▶CABLE/DSS BOX▶TV
VCR▶TV
SELECT:▲ ▼ KEY
SET   :▶ KEY
END   :MENU KEY
```

Playback a Tape

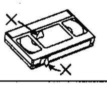
☑ **Check list before you begin.**

☐ All connections are made.
☐ TV and VCR are plugged in.
☐ TV is turned on and set to the VCR channel (CH 3 or 4).

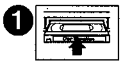




Caution:
Please inspect your cassette tapes and remove any loose or peeling labels to prevent them from becoming jammed in your unit.

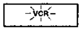


❶ Insert a cassette.



- VCR power comes on automatically.

This indicator lights in the Multi Function Display.



❷ Push PLAY on the remote or VCR to start playback.

- Playback begins automatically if cassette has no record tab.

❸ Push STOP on the remote or VCR to stop playback.

❹ Push EJECT on the VCR to eject the cassette.

- You may eject a cassette with power on or off.

To Find a Particular Scene During Playback

REW or FF

Push REW or FF during playback to search for a scene.

- Search speed for SP mode tapes is 9 times and SLP mode tapes is 27 times the normal speed.
- Some noise bars will appear during search.

Special Effects During Playback

These features work best in SP or SLP mode. The sound will be muted.

Slow Motion Playback
Push SLOW to start slow motion playback during playback.
Push PLAY or SLOW to release.

Still (Freeze) Frame Picture
Push PAUSE to freeze and release the picture.

- To reduce picture noise, first push SLOW. Then, use CH (TRACKING) ▲/▼ to clear up the picture, then push PAUSE.

Frame by Frame Advance
In Still mode, hold down SLOW to advance the still picture one frame at a time. Push PAUSE to release.

Features for a Quality Picture

Digital Auto Picture
This feature automatically controls the video output signal for less noise depending on the tape condition.

Digital Auto Tracking
This feature continuously analyzes the signal and adjusts for optimum picture quality.

Manual Tracking Control (to reduce picture noise)
Use during Playback and Slow Motion mode to reduce picture noise.
Push CH (TRACKING) ▲/▼ during playback until the picture clears up.
To return to Auto Tracking mode, push POWER off and then on again.

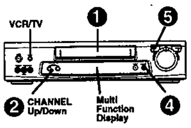
V-Lock Control (to reduce picture jitter)
In Still mode, CH (TRACKING) ▲/▼ operate as a V-Lock control.
Push ▲/▼ until the picture is stabilized.

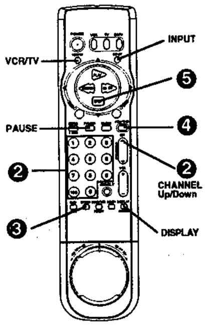
DynAmorphous™ Metal Head/ CNR (Color Noise Reduction)/ ANR (Advanced Noise Reduction)
DynAmorphous™ Metal Head increases playback and record picture quality. Color Noise Reduction reduces the color noise. Advanced Noise Reduction reduces the luminance noise.

> **NOTE**
> - After the VCR is in Still or Slow mode for 3 minutes, it will switch to the Stop mode automatically to protect the tape and the video head.

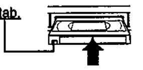
Record On a Tape

☑ Check list before you begin.
☐ All connections are made.
☐ VCR is Plugged in.
☐ TV is turned on and set to the VCR channel (CH3 or CH4).


VCR/TV
1
5
2 CHANNEL Up/Down
Multi Function Display
4

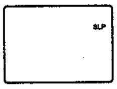

INPUT
VCR/TV
5
PAUSE
4
2
2 CHANNEL Up/Down
3
DISPLAY

1 Insert a cassette with record tab.
- VCR power comes on automatically.



2 Push CH ▲/▼ or NUMBERED keys to select a channel.
- Or, push CHANNEL ▲/▼ on the VCR.
- Holding down CH ▲/▼ will increase the channel search speed.
- To record from an outside source, push CH ▲/▼ or INPUT to select "LINE1" or "LINE2."

3 Push SPEED to change the recording speed.
- SP = Standard Play
  LP = Long Play
  SLP = Super Long Play

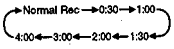


4 Push REC/TIME on the remote control or VCR to start recording.
- To edit out unwanted portions, push PAUSE to pause the recording in progress.
  To release, push PAUSE again.
  (After the VCR has been in Pause mode for 5 minutes, it will stop automatically to protect the tape and video head.)

One Touch Timer Recording (OTR)

The VCR starts recording and turns itself off at a preset time.

In step 4, push REC/TIME repeatedly to set the length of the recording. Each push will change the stop time as shown.


Normal Rec
0:30
1:00
1:30
2:00
3:00
4:00

- "TIMER" lights in the Multi Function Display.
- The remaining recording time can be displayed by pushing DISPLAY in OTR mode.

5 Push STOP on the remote control or VCR to stop recording.

Record One Program While Watching Another

1 Push VCR/TV while recording is in progress to turn off the VCR indicator in the Multi Function Display.

2 Use the TV channel controls to select a program. The VCR will continue to record your program while you watch any channel you choose.
- To switch back and forth between the recording and viewing channel, push VCR/TV.

Selecting Channels at the VCR

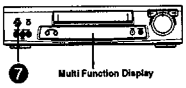
1 Turn your TV and VCR on.
- VCR indicator lights on the Multi Function Display. If indicator doesn't light, push VCR/TV to turn it on.

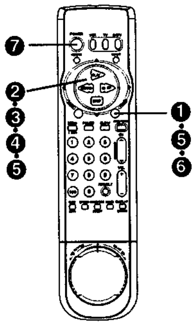
2 Use CH ▲/▼ on the remote control or VCR to select channels.
- To switch back to TV channel selection, push VCR/TV to turn VCR indicator off, or simply turn the VCR power off.

Timer Recording

You can set up the VCR to record a one time, daily, or weekly program while you are away or otherwise occupied. Up to 8 programs can be stored in memory.

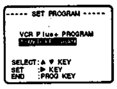
☑ Check list before you begin.
☐ All connections are made.
☐ TV and VCR are plugged in and turned on.
☐ VCR/TV selector is set to "VCR."
☐ Clock is set to correct time.
☐ Record tab in place.


7
Multi Function Display

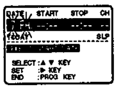


Important notes when using a DSS receiver
- When recording programs via a DSS receiver, the DSS receiver must be left on.
- When recording programs via an antenna or cable, the DSS receiver must be turned off.

1 Push PROG to display the "SET PROGRAM" screen.

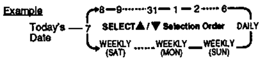

----- SET PROGRAM -----
VCR Plus+ PROGRAM
SELECT:▲ ▼ KEY
SET :▶ KEY
END :PROG KEY

2 Push ▲▼ to select "TIMER PROGRAM," and then push ▶ to display the program screen.
- If a program is already in memory, push ▲▼ and ▶ to select an unused program number.


DATE START STOP CH
TODAY
SLP
SELECT:▲ ▼ KEY
SET :▶ KEY
END :PROG KEY

3 Push ▲▼ and ▶ to select and set one of the following:
- 1–31 =One time recording
- DAILY =Same time MON–FRI
- WEEKLY =Same time once a week

Example

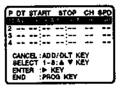

Today's Date
7
8
9
31
1
2
6
SELECT▲/▼ Selection Order
DAILY
WEEKLY (SAT)
WEEKLY (MON)
WEEKLY (SUN)

4 Push ▲▼ and ◀▶ to select and set each of the remaining items at right.

Remaining Items to be set:
- START time
- STOP time
- CH(annel) number, or LINE for outside source recording
- Speed (SP, LP, SLP)

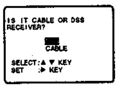
To Make Corrections, repeatedly push ▶ to move the cursor to the right, or ◀ to move to the left to the incorrect entry and make the correction.

5 Push PROG to end the program.
- This screen appears for confirmation.


P DT START STOP CH SPD
2 -- --:-- --:-- -- --
3 -- --:-- --:-- -- --
4 -- --:-- --:-- -- --
CANCEL :ADD/DLT KEY
SELECT 1-8:▲ ▼ KEY
ENTER :▶ KEY
END :PROG KEY

If you use a DSS receiver and enter a channel number of 100–125, the screen at right appears.

Push ▲▼ to select "DSS" or "CABLE," and then push ▶ to enter.
- The confirmation screen appears above right after this selection.

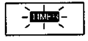

IS IT CABLE OR DSS RECEIVER?
CABLE
SELECT:▲ ▼ KEY
SET :▶ KEY

To Enter More Programs
Push ▲▼ and ▶ to select and set a blank program number, and then repeat steps 3 and 4.

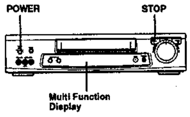
6 Push PROG to exit this mode and return to the normal screen.

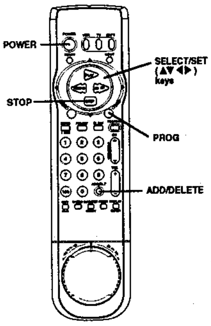
7 Push POWER off to set the timer.
- When recording programs via a cable box, make sure the cable box is left on. If the cable box cannot be controlled with the VCR, you must manually select the desired channel.

Multi Function Display



Timer Recording (continued)


POWER
STOP
Multi Function Display


POWER
SELECT/SET (▲▼◀▶) keys
STOP
PROG
ADD/DELETE

Cancel a Timer Recording:
(Recording is in progress)

Push POWER and then STOP within 10 seconds to cancel the timer recording.
- The TIMER indicator goes out in the Multi Function Display.

Replace Program Contents:
(Recording is not in progress)

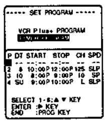
1 Push PROG to display the "SET PROGRAM" screen.

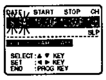
2 Push ▲▼ to select "TIMER PROGRAM," and then push ▶ to display all currently set programs.

3 Push ▲▼ and ▶ to select and set a program number.

4 Push ▲▼ and ◀▶ to select and set replacement timer information.

5 Push PROG twice to exit this mode.


----- SET PROGRAM -----
VCR Plus+ PROGRAM
P DT START STOP CH SPD
2 8 10:00P 12:00P 125 SLP
3 10 8:00P 9:00P 10 SP
4 SU 9:00P 10:00P L SLP
SELECT 1-8:▲ ▼ KEY
ENTER :▶ KEY
END :PROG KEY


DATE START STOP CH
SLP
SELECT:▲ ▼ KEY
SET :◀ ▶ KEY
END :PROG KEY

Review or Clear Program Contents:
(Recording is not in progress)

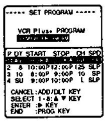
1 Push PROG to display the "SET PROGRAM" screen.

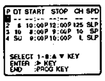
2 Push ▲▼ to select "TIMER PROGRAM," and then push ▶ to display all currently set programs.

3 Push ▲▼ to select a program number.

4 Push ADD/DLT to clear the program.

5 Push PROG to exit this mode.


----- SET PROGRAM -----
VCR Plus+ PROGRAM
P DT START STOP CH SPD
2 8 10:00P 12:00P 125 SLP
3 10 8:00P 9:00P 10 SP
4 SU 9:00P 10:00P L SLP
CANCEL :ADD/DLT KEY
SELECT 1-8:▲ ▼ KEY
ENTER :▶ KEY
END :PROG KEY

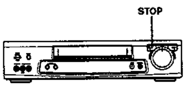

P DT START STOP CH SPD
2 8 10:00P 12:00P 125 SLP
3 10 8:00P 9:00P 10 SP
4 SU 9:00P 10:00P L SLP
SELECT 1-8:▲ ▼ KEY
ENTER :▶ KEY
END :PROG KEY

NOTES

- A cassette with no record tab is ejected and TIMER indicator flashes when the power is turned off to set the timer.
- If the start times of two programs overlap, the overlapping programs will flash on the screen. The lower numbered program will have priority.
- If the start time for a timer recording comes up during a normal recording or One Touch Recording, the timer recording will not be performed.
- If there is a power interruption of more than one minute, the recording will not be performed or continue.

Special VCR Features

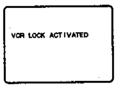
☑ Check list before you begin.
☐ All connections are made.
☐ VCR is Plugged in.
☐ TV is turned on and set to the VCR channel (CH3 or CH4).



VCR Lock Feature

When activated, this feature prohibits all operations except for timer recording and tape eject. This feature is used to keep children from operating the VCR.

Hold down STOP on the VCR for 7 seconds while in Stop or Power OFF mode.


VCR LOCK ACTIVATED

To Cancel the VCR Lock feature,

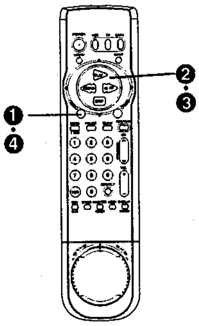
hold down STOP on the VCR for 7 seconds again while in Stop or Power OFF mode.

VCR LOCK OFF

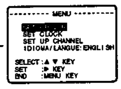
- VCR Lock mode is cancelled automatically after 24 hours as long as the clock is set.

Warning Beeper Feature

When you select BEEPER ON, a short warning will sound each time an invalid entry or incomplete operation is made.

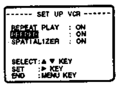


1 Push MENU to display the menu.


--------- MENU ---------
SET CLOCK
SET UP CHANNEL
IDIOMA/LANGUE: ENGLISH
SELECT:▲ ▼ KEY
SET :▶ KEY
END :MENU KEY

2 Push ▲▼ to select "SET UP VCR," and then push ▶ to display the "SET UP VCR" screen.

3 Push ▲▼ to select "BEEPER," and then push ▶ to select "ON" or "OFF."

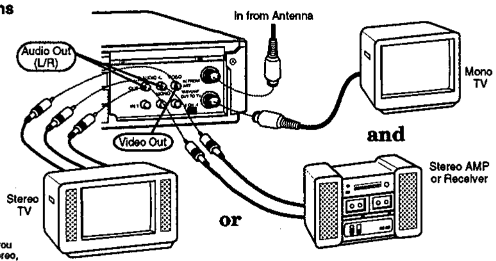

------ SET UP VCR ------
REPEAT PLAY : ON
BEEPER : ON
SPATIALIZER : ON
SELECT:▲ ▼ KEY
SET :▶ KEY
END :MENU KEY

4 Push MENU twice to exit this screen.

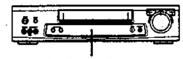
MTS Broadcast/ VHS Hi-Fi Stereo System (For Models NV-HD7070PX/NV-HD7080PX)

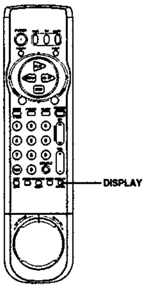
☑ Check list before you begin
☐ The VCR is connected to a stereo TV, or a mono TV and an external stereo amp or receiver with speakers.
☐ The VCR and other components are plugged in and turned on.

Connections to Make



When recording, you may monitor in stereo, by connecting the VCR to either a stereo TV, or a mono sound TV with an external stereo amp and speakers.


Multi Function Display



Equipped with dbx® -TV Noise Reduction for true MTS reproduction. dbx® -TV Noise Reduction is required for good stereo separation and audio fidelity. dbx® is a registered trademark, and is licensed by dbx® Technology Licensing.

Receivable Broadcast Types

The following are possible audio broadcast types and on-screen displays. Parenthesis indicate signal(s) not being received. The arrow indicates the selected audio mode.

Push DISPLAY to display the broadcast signal currently being received.

MTS Stereo and SAP broadcast

Multi-channel Television Sound Stereo (main language) and Secondary Audio Program (sub language) broadcasts are being received simultaneously.
The "STEREO" and "SAP" indicators light in the Multi Function Display.
Select STEREO or SAP audio mode.

```
STOP   12:00AM    CH08
                0:00:00
SPATIALIZER ON     SLP
STEREO ◄
SAP
MONO
```

MTS Stereo broadcast

Multi-channel Television Sound Stereo broadcast. The "STEREO" indicator lights in the Multi Function Display.
Select STEREO audio mode.

- If a stereo broadcast is weak and the display flickers, you may want to select the MONO audio mode for better results.

```
STOP   12:00AM    CH08
                0:00:00
SPATIALIZER ON     SLP
STEREO ◄
(SAP)
MONO
```

SAP broadcast

Secondary Audio Program (sub language) broadcast. The "SAP" indicator lights in the Multi Function Display. Select SAP audio mode for the sub language.

```
STOP   12:00AM    CH08
                0:00:00
SPATIALIZER ON     SLP
(STEREO)
SAP    ◄
MONO
```

MONO broadcast

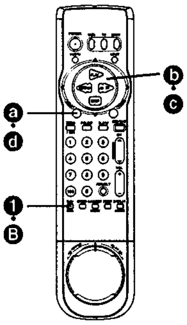
Normal monaural sound broadcast.

```
STOP   12:00AM    CH08
                0:00:00
SPATIALIZER ON     SLP
(STEREO)
(SAP)
MONO   ◄
```

With the proper audio mode setting, your VCR can:

1) record and playback an MTS stereo broadcast (main language) in stereo Hi-Fi.
2) record and playback a monaural broadcast (main language) or Secondary Audio Program (sub language) on the Hi-Fi tracks for better quality monaural sound.
3) playback non Hi-Fi tapes in monaural.

- When recording, the selected broadcast sound is always recorded on the left and right Hi-Fi tracks as well as the normal monaural track. This means your tapes can be played back on Hi-Fi as well as non-Hi-Fi VCRs.



Audio Mode for Recording

❶ Push SAP/Hi-Fi repeatedly (each push within 5 seconds) to select the desired audio mode (STEREO, SAP, or MONO).

- Please refer to the "Receivable Broadcast Types" section.

```
STEREO ◄
SAP
MONO
```

- The arrow indicates your selection.

❷ Do a recording.
See the "Record On a Tape" section.

Audio Mode for Playback

Ⓐ Playback the tape.
See the "Playback a Tape" section.

Ⓑ Push SAP/Hi-Fi repeatedly (each push within 5 seconds) to select the desired audio mode (HIFI or NORMAL).

- Select "HIFI" to listen to your stereo recordings with stereo sound, or "NORMAL" for monaural sound.

```
HIFI   ◄
NORMAL
```

- The arrow indicates your selection.

Spatializer Feature

This feature allows you to enhance the stereo sound so that it seems to surround you.
Note: Your VCR needs to be hooked up to a stereo TV or stereo amp/receiver with speakers. For playback, tapes must be recorded in Hi-Fi stereo. For TV viewing, programs must be broadcast in stereo.

ⓐ Push MENU to display the menu.

```
---------- MENU ----------
  [illegible]
  SET CLOCK
  SET UP CHANNEL
  IDIOMA/LANGUE:ENGLISH

SELECT:▲ ▼ KEY
SET   :► KEY
END   :MENU KEY
```

ⓑ Push ▲▼ to select "SET UP VCR," and then push ► to display the "SET UP VCR" screen.

```
------ SET UP VCR ------
REPEAT PLAY   : ON
BEEPER        : ON
[illegible]   : ON

SELECT:▲ ▼ KEY
SET   :► KEY
END   :MENU KEY
```

ⓒ Push ▲▼ to select "SPATIALIZER," and then push ► to select "ON" or "OFF."

ⓓ Push MENU twice to return to the normal screen.

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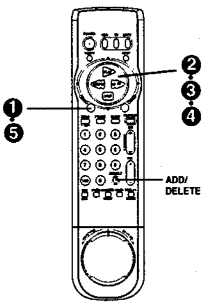
NOTES

- When purchasing or renting prerecorded tapes, remember that only those recorded in Hi-Fi stereo will play back with true stereo sound. Standard stereo tapes will play back with monaural sound.
- In order to listen to Hi-Fi stereo playback, the VCR AUDIO (L/R) jacks must be connected to a stereo TV or an external stereo amp and speakers.
- When adjusting the tracking during playback, the Hi-Fi audio sound may revert to normal audio sound. This is normal.
- There may be a difference in audio level between Hi-Fi and normal audio playback.
- Rec Level Meter will show the audio level during recording or playback.

VCR Plus+ Setup (For Model NV-HD7080PX)

Easy Taping.

In order for the VCR to read the VCR Plus+ code, some set up is required. A Guide (VCR Plus+) channel number is assigned to each local broadcast and cable station. Because this number sometimes differs from the channel your TV receives the station on, it is necessary to program the VCR with local channel information.



Channel Setup Preparations

NOTE: Complete the steps on this page if your VCR hook-up resembles "2" or "1" if cable box is remote controllable.

Prepare a list like the example below.
This list will help you smoothly enter the information needed in step "4" at right.

You will need the following to complete the list:

- ■ A line up of normal and/or cable stations you receive along with the channel numbers your TV receives them on. A cable channel line-up chart is supplied by your cable company.
- ■ A list of Guide (VCR Plus+) channel numbers assigned to the stations you receive. This list is available in *TV Guide* and the TV listings found in selected newspapers.

1 Make a chart with 3 columns like the example below. In the left column, fill in the name or call letters of the stations you receive.

2 In the middle column, fill in each station's assigned Guide (VCR Plus+) number found in TV Guide, newspapers, etc.

3 In the right column, fill in the channel number that your TV receives the station on from your channel line-up.

EXAMPLE ONLY

Broadcast or Cable Station Name	Assigned Guide (VCR Plus+) channel no.	Channel no. your TV receives the station on
HBO	33	15
Nickelodeon	38	20
CBS	04	04
FOX	11	

VCR Plus+ Channel Setup

For Connection Type "2" or "1" if cable box is remote controllable only

- **Before you begin, complete the Channel Setup Preparations below left.**

Important Note:
If your VCR connection method changes from 1 to 2, perform "To setup the VCR in case a cable box or DSS receiver was installed or replaced" section before proceeding with these steps.

❶ Push MENU to display the menu.

```
---------- MENU ----------
  SET UP VCR
  SET CLOCK
  [illegible]
  IDIOMA/LANGUE:ENGLISH

SELECT:▲ ▼ KEY
SET   :► KEY
END   :MENU KEY
```

❷ Push ▲▼ to select "SET UP CHANNEL," and then push ► to display the "SET UP CHANNEL" screen.

❸ Push ▲▼ to select "VCR Plus+ CH SET UP," and then push ► to display the "VCR Plus+ CH SET UP" screen.

```
--- SET UP CHANNEL ---
ANTENNA SYSTEM : CATV
AUTO SET
CABLE/DSS BOX SET UP
[illegible]

SELECT:▲ ▼ KEY
SET   :► KEY
END   :MENU KEY
```

IMPORTANT NOTE:
For step "4," use the list you prepared. You may leave lines blank if you don't receive that station, or if the GUIDE CH number and the CATV (or TV) CH numbers are the same.

❹ Push ► to move the shaded area to the right side.

```
VCR Plus+ CH SET UP
 GUIDE CH     CATV CH
► ■                --
  02               --

SELECT:▲ ▼ KEY
SET   :► KEY
END   :MENU KEY
```

Then, push ▲▼ to change CATV or TV CH number.

Next, push ◄ to set the number.

Now, push ▲▼ to continue.

Repeat this operation until the list is complete.

```
VCR Plus+ CH SET UP
 GUIDE CH     CATV CH
► 01               ■
  02               --

SELECT:▲ ▼ KEY
SET   :◄ KEY
END   :MENU KEY
```

To Make Corrections
Push ▲▼ and ► to select the incorrect CATV or TV CH number. Then, push ▲▼ to change, or ADD/DLT to delete the channel.

❺ Push MENU three times to exit the VCR Plus+ CH SET UP mode.

NOTES

- Make each entry within 5 minutes or the VCR will leave this mode.
- Once local channels have been programmed, they will stay in memory, even in the case of a power failure.

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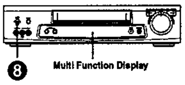
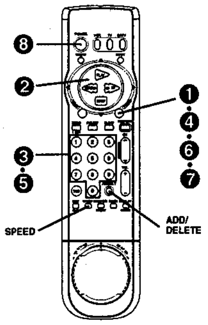
VCR Plus+ Programming

(For Model NV-HD7080PX)

Easy Taping.

☑ **Before you begin, make sure...**
☐ The clock is set.
☐ VCR Plus+ Setup is complete





Use normal Timer Recording steps if:

- the PlusCode for a program is not listed.
- you anticipate the program, such as a sporting event, to run over the scheduled stop time.

See "Timer Recording" to:

- cancel a timer recording in progress.
- replace program contents.
- review or clear program contents once set.

Important notes when using a DSS receiver

- When recording programs via a DSS receiver, the DSS receiver must be left on.
- When recording programs via an antenna or cable, the DSS receiver must be turned off.

❶ Push PROG to display the "SET PROGRAM" screen.

```
----- SET PROGRAM -----
  [illegible]
  TIMER PROGRAM
```

❷ Push ▲▼ to select "VCR Plus+ PROGRAM," and then push ► to display the "VCR Plus+" screen.

```
       VCR Plus+
ENTER PLUSCODE NUMBER
          -
     USING 0-9 KEYS
END   :PROG KEY
```

❸ Push the NUMBERED keys to enter the PlusCode number.

- Refer to your local TV listings.

To Make Corrections
Push ◄ repeatedly to delete the PlusCode number. Then, enter the correct number.

```
       VCR Plus+
ENTER PLUSCODE NUMBER
        123456
     USING 0-9 KEYS
BACKSPACE:◄ KEY
ENTER :PROG KEY
```

❹ Push PROG to lock in your program.

❺ Push the **1, 2 or 3** key to select the program type.

```
       VCR Plus+
 1 ONE TIME
 2 DAILY(MON-FRI)
 3 WEEKLY
TO SELECT PUSH 1,2 OR 3
```

To change the recording speed:
Push SPEED for SP, LP or SLP.

To cancel program contents:
Push ADD/DLT.

```
DATE    START    STOP   CH
8 SAT  10:00P  12:00P  125
                       SLP
TO CHANGE RECORD SPEED
PUSH SPEED KEY
 CANCEL:ADD/DLT KEY
 ACCEPT:PROG KEY
```

- If you use connection type 1, the channel shown in this on-screen display will always be the cable box output channel number.

❻ Push PROG if contents are acceptable.

- If programs are overlapped, a warning screen will appear.

```
P DT  START   STOP   CH SPD
1DAY  9:00A 12:00A   08  SP
[illegible]
3 -- --:-- --:--     --  --
4 -- --:-- --:--     --  --
 CANCEL :ADD/DLT KEY
 SELECT 1-8:▲ ▼ KEY
 ENTER  :► KEY
 END    :PROG KEY
```

❼ Push PROG to complete the program.

- When recording programs via a cable box, make sure the cable box is left on. If the cable box can not be controlled with the VCR, you must manually select the desired channel.

```
    TURN VCR OFF
FOR TIMER RECORDING
        AND
LEAVE CABLE BOX POWER ON
```

- This display may differ depending on your cable box hook-up.

❽ Push POWER off to set the timer.

Multi Function Display

NOTES

- For a list of publications that carry the PlusCode numbers in your area, call 1 - 800 - 258 - 4827.
- You can obtain unlisted PlusCode numbers by calling 1 - 900 - 454 - 7587. Call costs approximately $.95 per minute.
- VCR PlusCodes can not be used to program the VCR to record DSS channels.
- Avoid overlapping program times. (The overlapping programs will flash on the screen.)
- An on-screen display will indicate if an invalid PlusCode number has been entered or when all timer programs are full.

SERVICE NOTES

SIMPLIFIED FAULT FINDING DATA

Simplified Self-Diagnostic System facilitates finding the cause of the fault. A 4 digit fault code will be displayed in F.I.P. The Simplified Fault finding data is memorized for approximately 12 hours. This data is cleared after it is displayed and then, the POWER button is pressed back on.

1. With power turned off, press PLAY button on VCR (for over 3 seconds if VCR is not in shut off condition).

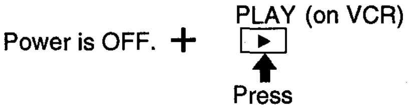

PLAY (on VCR)
Power is OFF. +
▶
Press

Fig. 1-1

2. Fault code (4 digit number) will be displayed in F.I.P. as shown.

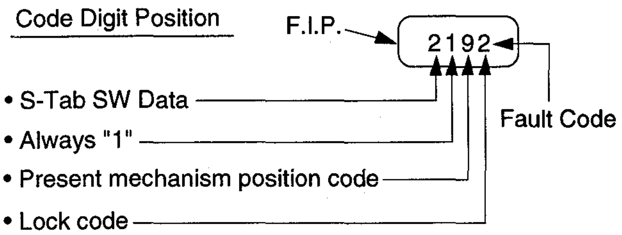
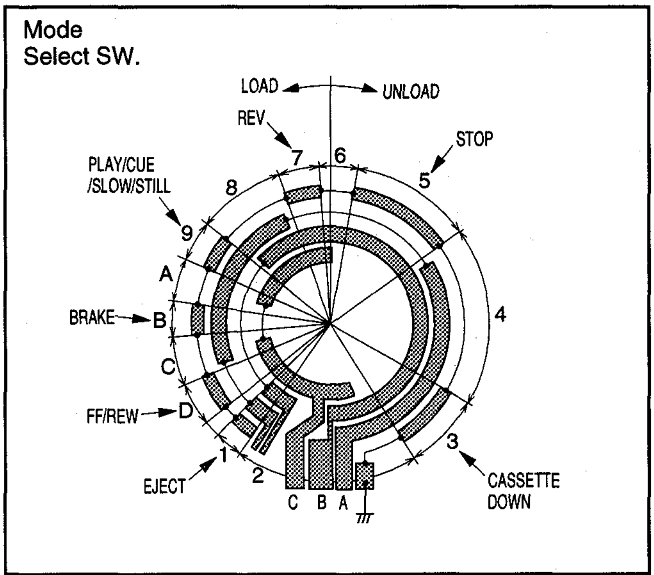

Code Digit Position
F.I.P.
2192
• S-Tab SW Data
• Always "1"
• Present mechanism position code
• Lock code
Fault Code

Fig. 1-2

Explanation of Codes	Code No.			
S-Tab SW. Data				
• S-Tab SW. is off.	1			
• S-Tab SW. is on.	2			
Not applicable		1		
Present Mechanism Position Code				
Mechanism Position is indicated. (Refer to Fig. 1-4.)			1 2 3 4 5 6 7 8 9 A B C D	
Lock Code (See Note 1.)				
• VCR is not in shut-off condition.				0
• Reel lock.				1
• Cylinder lock.				2
• Exceeds loading/unloading time. (Mechanism Lock)				3
• Exceeds Cassette loading/unloading time. (Cassette Lock)				
Tape Unloading (direction)			1	4
Tape Loading (direction)			2	4

Fig. 1-3


Mode
Select SW.
LOAD
UNLOAD
REV
STOP
PLAY/CUE
/SLOW/STILL
7
6
8
5
9
A
BRAKE
B
4
C
FF/REW
D
3
EJECT
1
2
CASSETTE
DOWN
C B A

Mechanism position	EJECT		CASSETTE DOWN		STOP/ STBY		REV		PLAY/CUE/ SLOW/STILL		BRAKE		FF/REW
position code	1	2	3	4	5	6	7	8	9	A	B	C	D

Fig. 1-4

3. While pressing down PLAY button on VCR with power turned off, press any operation button on either VCR, or remote to detect that a key has been pressed.
   The 1st digit changes to "0" only when key is detected.

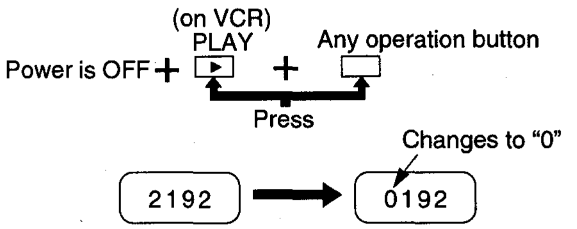

(on VCR)
PLAY
Any operation button
Power is OFF +
▶
+
Press
Changes to "0"
2192
0192

Fig. 1-5

Note:

1. When 1 to 4 listed in Lock code occurs, the VCR goes into VCR shut-off condition. VCR stops and all VCR function buttons except for power become non-operational.

SERVICE POSITION

The Basic Service Position does not require the use of Extension Cables. However, for more extensive servicing, Extension Cables should be used.

1. Basic Service Position

Service Position	Purpose
Service Position (1)	Mechanism check Mechanical adjustment Electrical adjustment
Service Position (2)	Main C.B.A. check

Service Position (1)

(Model: A, B, C, D, E)

1. Remove Top Cover and Front Panel Ass'y.

(Model: F)

1. Remove Top Cover, Shuttle Dial, and Front Panel Ass'y.
2. Install Shuttle Dial to Operation C.B.A. as shown.

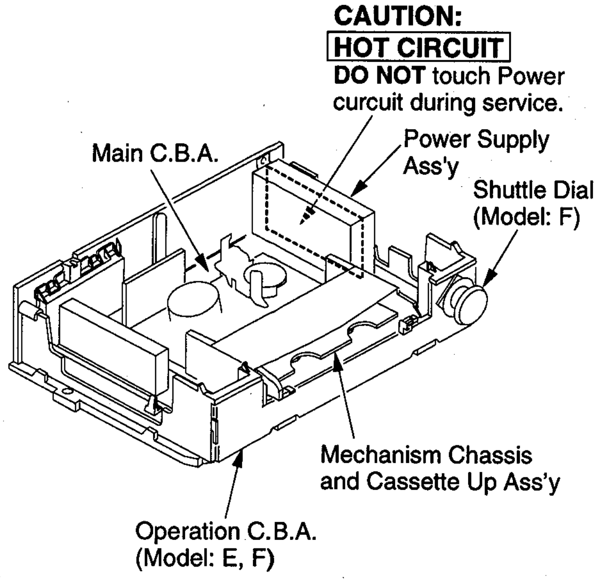

CAUTION:
HOT CIRCUIT
DO NOT touch Power curcuit during service.
Main C.B.A.
Power Supply Ass'y
Shuttle Dial (Model: F)
Mechanism Chassis and Cassette Up Ass'y
Operation C.B.A. (Model: E, F)

Fig. 2-1

Service Position (2)

(Model: A, B, C, D, E)

1. Remove Top Cover, Front Panel Ass'y, Power Supply Ass'y, and (Operation C.B.A.: Model E). Then, remove VCR Chassis Unit out of Frame.
2. Place VCR Chassis Unit, Power Supply Ass'y, and (Operation C.B.A.: Model E) as shown.

(Model: F)

1. Remove Top Cover, Shuttle Dial, Front Panel Ass'y, Power Supply Ass'y, and Operation C.B.A. Then, remove VCR Chassis Unit out of Frame.
2. Place VCR Chassis Unit, Power Supply Ass'y, and Operation C.B.A. as shown.
3. Install Shuttle Dial to Operation C.B.A. as shown.

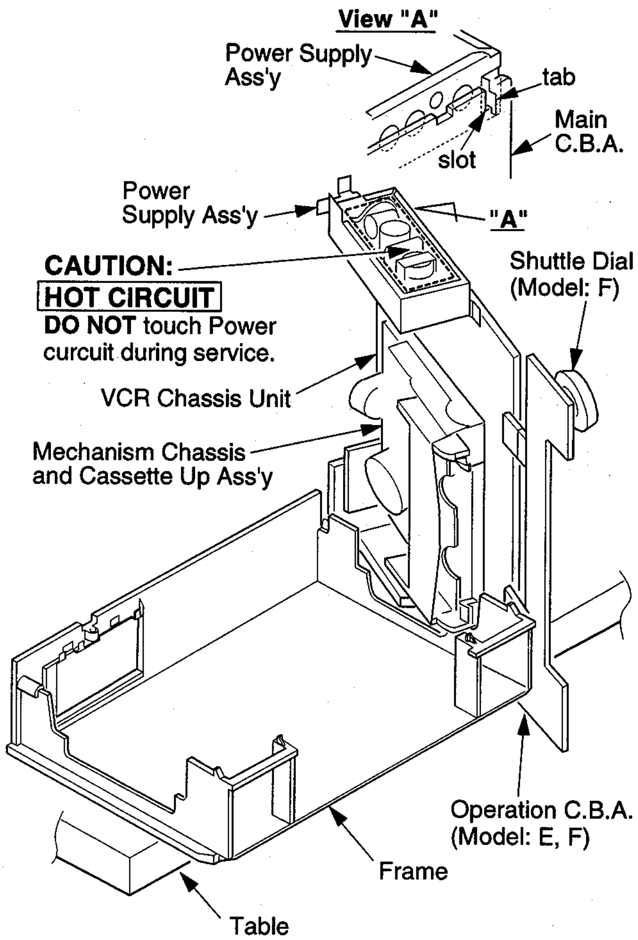

View "A"
Power Supply Ass'y
tab
Main C.B.A.
slot
Power Supply Ass'y
"A"
CAUTION:
HOT CIRCUIT
DO NOT touch Power curcuit during service.
Shuttle Dial (Model: F)
VCR Chassis Unit
Mechanism Chassis and Cassette Up Ass'y
Operation C.B.A. (Model: E, F)
Frame
Table

Fig. 2-2

CAUTION:

HOT CIRCUIT (Primary circuit) exists in the Power Supply Ass'y.
Use extreme care to prevent accidental shock when servicing.

Note:

When disassembling/assembling, refer to "Disassembly/ Assembly Procedures of Cabinet" section.

2. Service Position with Extension Cable Kit

In Service Position with Extension Cable Kit, mechanism check from the Bottom Side of Mechanism Chassis and Capstan Stator Unit (Capstan Motor Drive, Loading Motor Drive Circuit) check with power on condition can be performed.

Service Position

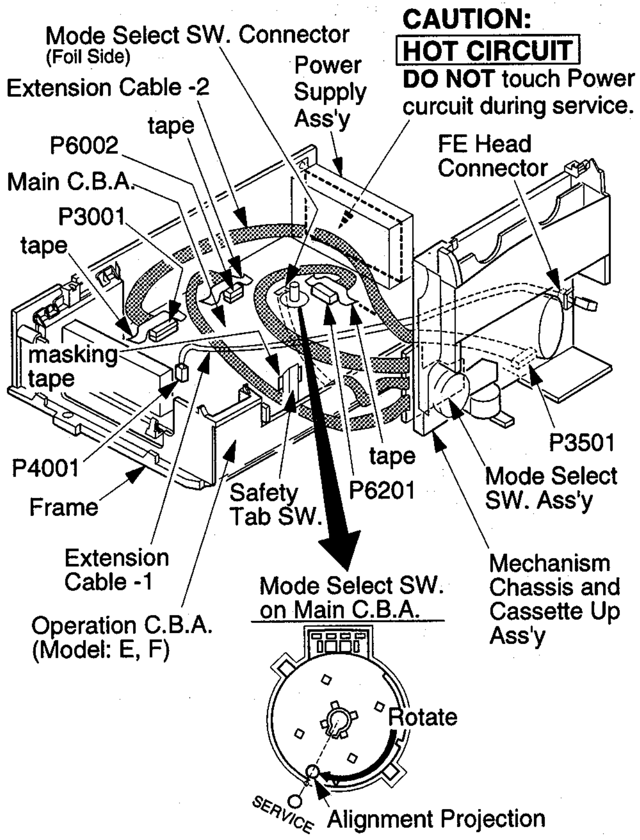

Mode Select SW. Connector
(Foil Side)
Extension Cable -2
tape
P6002
Main C.B.A.
P3001
tape
masking tape
P4001
Frame
Extension Cable -1
Operation C.B.A.
(Model: E, F)
Power Supply Ass'y
CAUTION:
HOT CIRCUIT
DO NOT touch Power curcuit during service.
FE Head Connector
P3501
Mode Select SW. Ass'y
Mechanism Chassis and Cassette Up Ass'y
tape
Safety Tab SW.
P6201
Mode Select SW. on Main C.B.A.
Rotate
SERVICE
Alignment Projection

Fig. 2-3

Extension Cable Kit (VUZS0002)

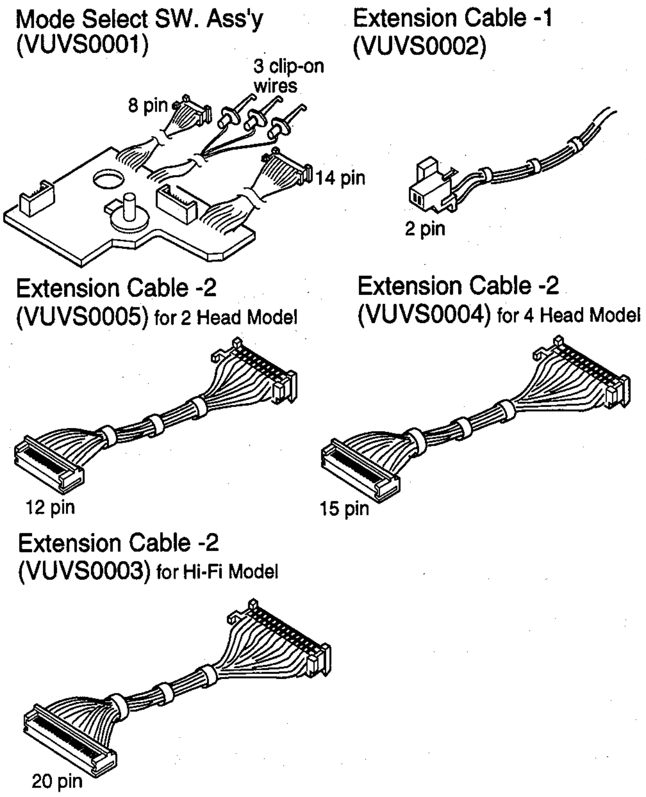

Mode Select SW. Ass'y
(VUVS0001)
3 clip-on wires
8 pin
14 pin
Extension Cable -1
(VUVS0002)
2 pin
Extension Cable -2
(VUVS0005) for 2 Head Model
12 pin
Extension Cable -2
(VUVS0004) for 4 Head Model
15 pin
Extension Cable -2
(VUVS0003) for Hi-Fi Model
20 pin

Fig. 2-4

Note:
3 types of Extension Cable -2 are included in this kit. Since there is a difference in the number of P3501 Head Amp C.B.A. pins between 2 Head, 4 Head, and Hi-Fi models, be sure to use the proper cable.

How to place the unit in the Service Position with Extension Cables

1. Remove Top Cover, (Shuttle Dial: Model F), Front Panel Ass'y, Mechanism Chassis, and Cassette Up Ass'y.
2. **(Model: F)**
   Install Shuttle Dial to Operation C.B.A.
3. Connect the Extension Cables as follows:

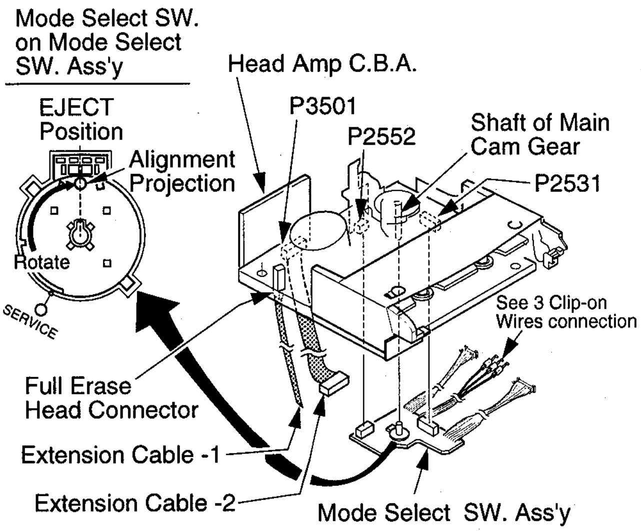
- Extension Cable -1: Full Erase Head Connector on the Mechanism Chassis Unit ~ P4001 on the Main C.B.A.
  Note: No change in performance if pins are reversed.
- Extension Cable -2: P3501 on the Head Amp C.B.A. ~ P3001 on the Main C.B.A.
- Mode Select SW. Ass'y: a) 3 Clip-on Wires ~ Mode Select SW. Connector on the Main C.B.A.

  1 Pin (Not Used)
  Red Wire ~ 2 pin
  Orange Wire ~ 3 pin
  Yellow Wire ~ 4 pin

  b) 8 Pin Connector ~ P6002 on the Main C.B.A.

  c) 14 Pin Connector ~ P6201 on the Main C.B.A.

  d) Set Mode Select SW. on the Mode Select SW. Ass'y to EJECT position and install onto Mechanism Chassis


Mode Select SW. on Mode Select SW. Ass'y
EJECT Position
Alignment Projection
Rotate
SERVICE
Head Amp C.B.A.
P3501
P2552
Shaft of Main Cam Gear
P2531
See 3 Clip-on Wires connection
Full Erase Head Connector
Extension Cable -1
Extension Cable -2
Mode Select SW. Ass'y

3 Clip-on Wires connection

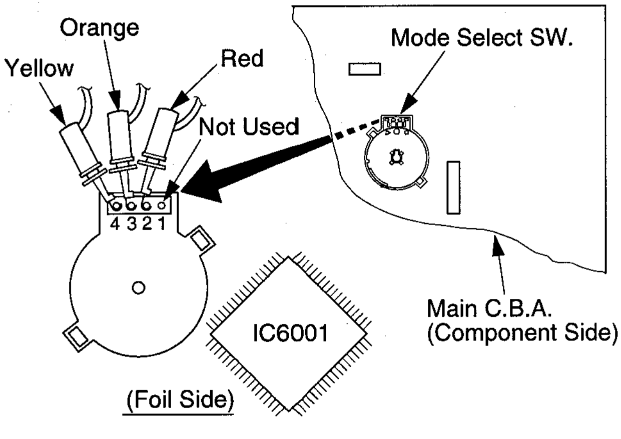

Orange
Yellow
Red
Not Used
4 3 2 1
Mode Select SW.
IC6001
Main C.B.A. (Component Side)
(Foil Side)

Fig. 2-5

4. Place Mechanism Chassis and Cassette Up Ass'y as shown.
5. Secure the Extension Cables with tape as shown. When recording, cover the Safety Tab SW. with masking tape to turn this SW. on.

Note:
To avoid damaging the connectors on Main C.B.A., it is necessary to secure connectors with tape as shown.

6. Set Mode Select SW. on the Main C.B.A. to Service Position.
7. Plug the AC plug into an AC outlet.
8. Insert a cassette.
   The power comes on, the tape is fully loaded, and the unit goes into the STOP Mode.
9. Place a jumper between TP6001 and GND to place the unit in Service Mode.
10. Check and/or repair the unit.
11. Press the STOP/EJECT button to eject the cassette.

Note:
When inserting a cassette again, remove the jumper between TP6001 and GND and insert the cassette. Then, reconnect the jumper.

12. After servicing, remove the jumper between TP6001 and GND to release the unit from Service Mode.

Service Position

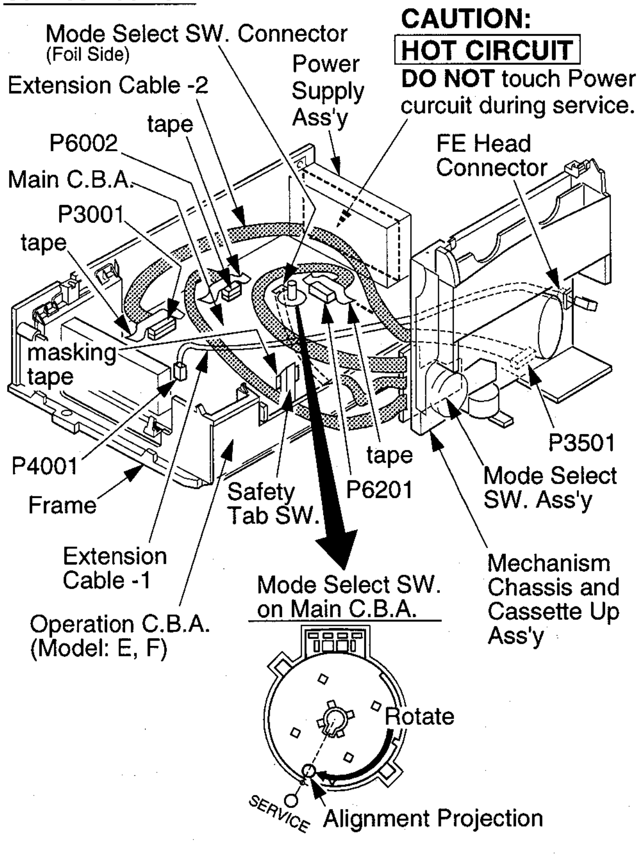

Mode Select SW. Connector (Foil Side)
Extension Cable -2
Power Supply Ass'y
CAUTION:
HOT CIRCUIT
DO NOT touch Power curcuit during service.
tape
P6002
Main C.B.A.
FE Head Connector
P3001
tape
masking tape
P4001
Frame
Safety Tab SW.
tape
P6201
P3501
Mode Select SW. Ass'y
Extension Cable -1
Operation C.B.A. (Model: E, F)
Mode Select SW. on Main C.B.A.
Mechanism Chassis and Cassette Up Ass'y
Rotate
SERVICE
Alignment Projection

Fig. 2-6

CAUTION:
HOT CIRCUIT (Primary circuit) exists in the Power Supply Ass'y. Use extreme care to prevent accidental shock when servicing.

Note:
When disassembling/assembling, refer to "Disassembly/Assembly Procedures of Cabinet" section.

HOT CIRCUIT

Primary circuit exists in the Power Supply Ass'y.
This circuit is identified as "**HOT**" on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

SERVICE MODE

In order to inhibit detection of the Supply & Takeup Photo Transistors, Reel Sensor, and Cylinder Lock, press VCR/TV button and CH down button together on VCR for over 5 seconds in power off condition.

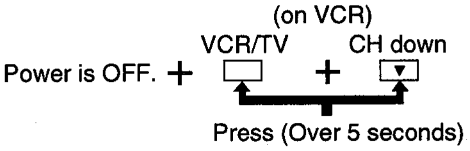

(on VCR)
VCR/TV
CH down
Power is OFF.
Press (Over 5 seconds)

Fig. 3

The power comes on and the unit goes into service mode.

In this mode, Mechanism movement can be confirmed. When removing Cassette Up Ass'y, it can be confirmed without a cassette.

To release from this mode, press POWER button off or disconnect AC Plug.

(Alternative method) Ground the TP6001.

INSTALLATION OF FRONT PANEL ASS'Y CAUTION

1. Swing the Cassette Door -Lid all the way open until the Cassette Door tab clears the Opener Lever.
2. Make sure that all locking tabs are aligned properly. Then, press the Front Panel straight in.

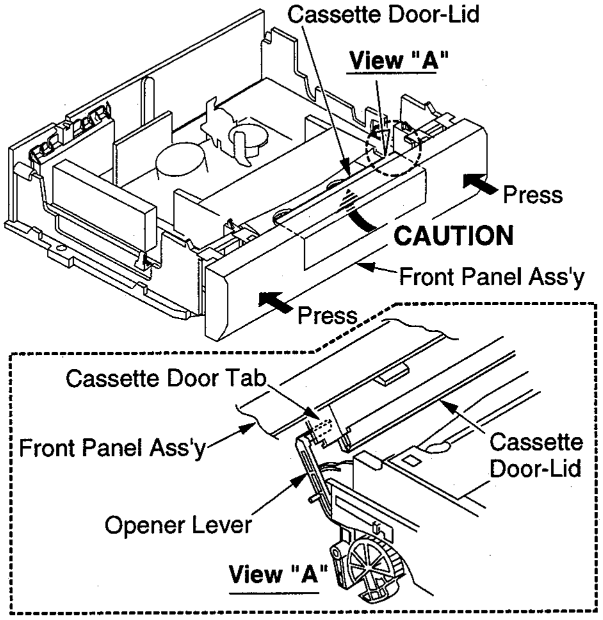

Cassette Door-Lid
View "A"
Press
CAUTION
Front Panel Ass'y
Press
Cassette Door Tab
Front Panel Ass'y
Cassette Door-Lid
Opener Lever
View "A"

Fig. 4

DEFEATING THE AUTO TRACKING

To defeat the Auto Tracking Function, place the instrument in the STOP mode and place a jumper between TP6003 and TP6009 on the Main C.B.A. The tracking will be placed in the neutral position.

HOW TO SET TRACKING TO THE NEUTRAL POSITION

Ejecting the cassette tape and then reinserting it will reset the tracking to the Neutral position.

METHOD FOR MANUAL LOADING/ UNLOADING OF MECHANISM

Turn the Main Cam Gear counterclockwise (for loading) or clockwise (for unloading) using needlenose pliers etc.

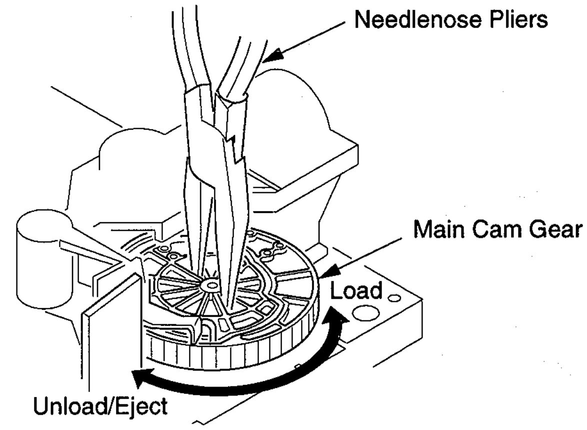

Needlenose Pliers
Main Cam Gear
Load
Unload/Eject

Fig. 5-1

When loading without a cassette, press Portion "a" on both sides of the Holder Unit of Cassette Up Ass'y so that the Levers clear the Tabs and Holes.

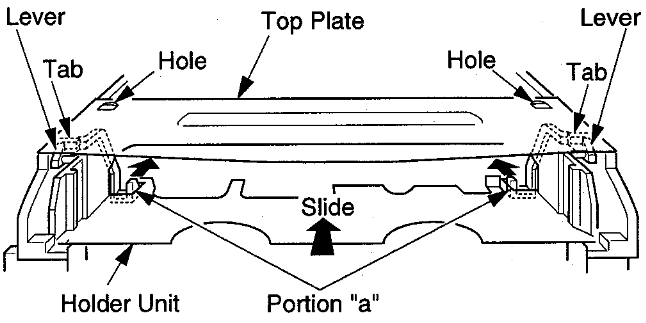

Lever
Top Plate
Lever
Tab
Hole
Hole
Tab
Slide
Holder Unit
Portion "a"

Fig. 5-2

HOW TO REMOVE A JAMMED TAPE

Manual Method

When a tape jam is encountered, check the tape loading condition and use the following procedure to remove a tape jam.

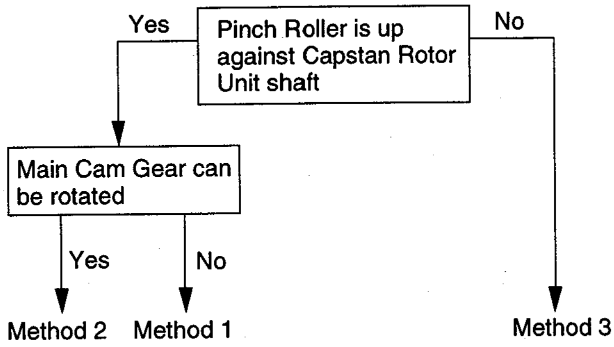

Yes
Pinch Roller is up against Capstan Rotor Unit shaft
No
Main Cam Gear can be rotated
Yes
No
Method 2
Method 1
Method 3

Fig. 6-1

Method -1:

1. While releasing 2 Locking Tabs (A) of Opener Piece, pull the Opener Piece up as far as you can.
2. Move the pin of Pinch Arm Unit out of the groove of the Main Cam Gear so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.

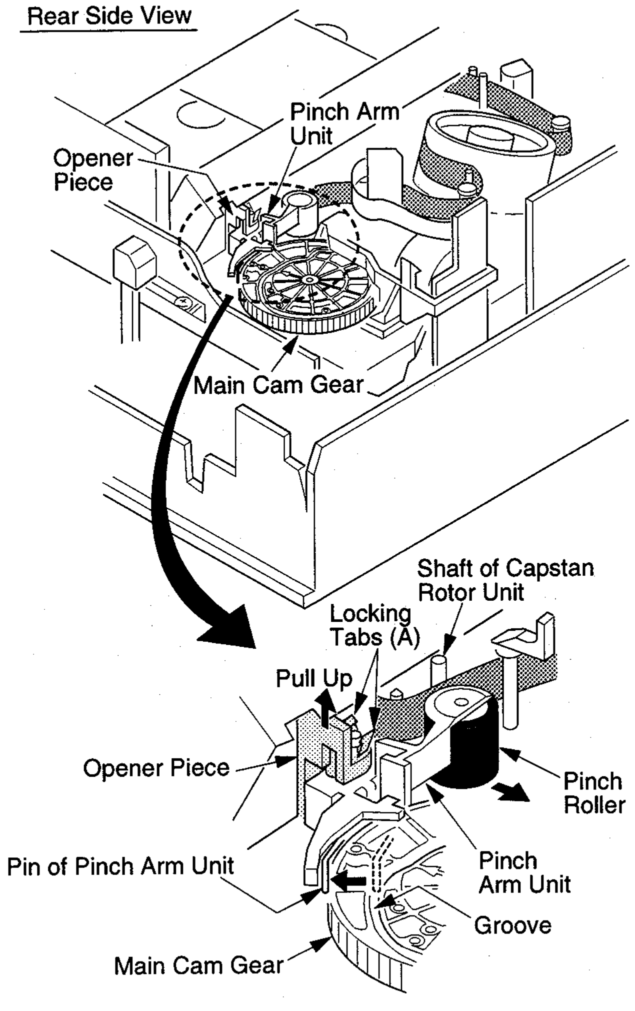

Rear Side View
Pinch Arm Unit
Opener Piece
Main Cam Gear
Shaft of Capstan Rotor Unit
Locking Tabs (A)
Pull Up
Opener Piece
Pinch Roller
Pin of Pinch Arm Unit
Pinch Arm Unit
Groove
Main Cam Gear

Fig. 6-2

3. Remove the tape from the tape path.
4. Rewind the tape into the cassette by rotating the Center Clutch Unit counterclockwise.
5. Unhook Spring (A) of the Drive Rack Unit.
6. Remove Screw (A).
7. Lift the Drive Rack Unit up so that the slot clears the guide tab. While pulling the Drive Rack Unit out far enough so that it clears the Drive Rack Arm, slide the Drive Rack Unit as indicated by the arrow to remove the cassette tape from the Cassette Up Ass'y.
8. Check the cause of mechanical trouble and repair.

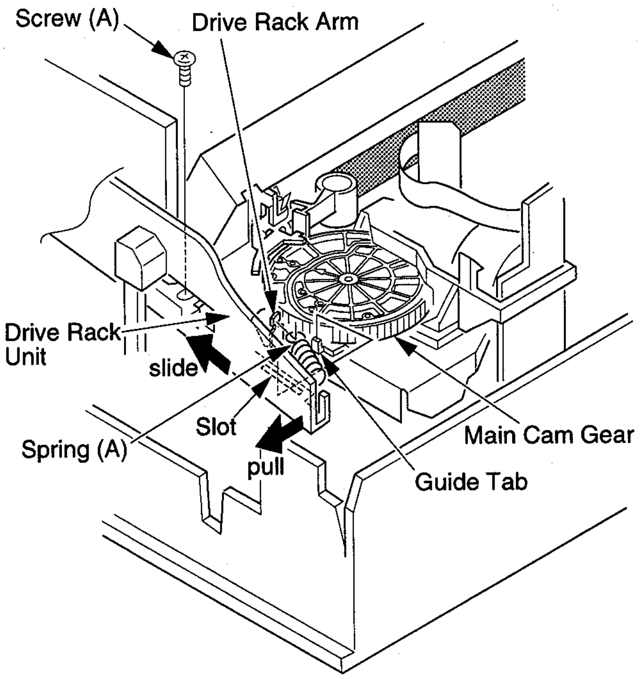

Screw (A)
Drive Rack Arm
Drive Rack Unit
slide
Slot
Spring (A)
pull
Main Cam Gear
Guide Tab

Fig. 6-3

Method -2:

1. Rotate Main Cam Gear clockwise with needlenose pliers, etc. so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.
2. Perform Step 3 through Step 8 of Method -1.

Method -3:

1. Perform Step 3 through Step 8 of Method -1.

Note:

After repairing mechanical trouble, make sure that all gear alignments are correct, especially the Wiper Arm Unit and Drive Rack Unit of Cassette Up Ass'y. (Refer to "**EJECT** Position confirmation" in Disassembly/Assembly Procedures of Mechanism.)

Electrical Method

Electrical method can only be performed when the mechanism is moved by rotating the Main Cam Gear.

CAUTION:

If loading does not start in approx. 2 seconds after DC Power Supply is applied, DO NOT continue to apply DC Power Supply. Instead, perform "Manual Method."

Method -1:

1. Remove the solder as shown and apply +10.0 VDC Power Supply (DC + to Portion "a," DC - to Portion "c").
2. When the Loading Posts reach the fully unloaded position, remove the Power Supply.

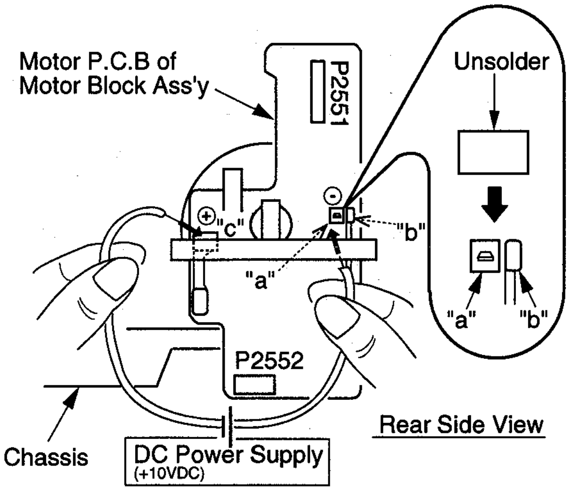


Fig. 7-1

Note:

Be careful not to let the DC Power Supply Unit GND contact the chassis GND. This may damage the Loading Motor Drive IC (IC 2501).
Be sure to apply DC + to Portion "a" of Motor P.C.B.
If DC + is applied to Portion "b", the Loading Motor Drive IC (IC2501) may be damaged.

3. Rewind the tape into the cassette by turning the Center Clutch Unit counterclockwise.
4. Eject the cassette by applying +10.0VDC Power Supply again.
5. After completing the removal procedure, solder Portion "a" and Portion "b."

Method -2:

1. Locate the Jumper (J6004) on the System Control Section of the Main C.B.A. and cut it near the center.

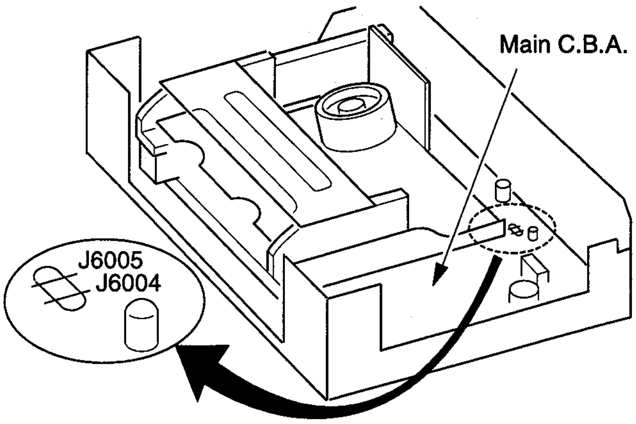


Fig. 7-2

2. Apply +10.0VDC Power Supply to the jumpers. When the Loading Posts reach the fully unloaded position, remove the Power Supply.

Note:

Be careful not to let the DC Power Supply Unit GND contact the chassis GND. This may damage the Loading Motor Drive IC (IC 2501).
Be sure to apply DC + to Portion "a" of J6004.
If DC + is applied to Portion "b" of J6004, the Loading Motor Drive IC (IC2501) may be damaged.

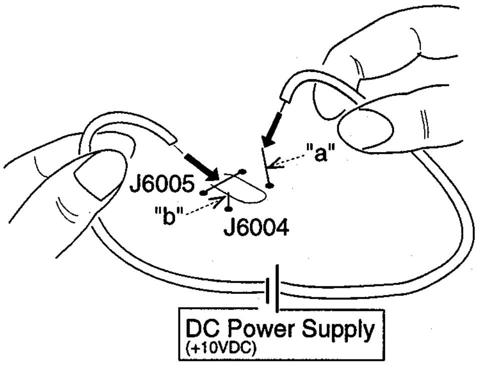


Fig. 7-3

3. Rewind the tape into the cassette by turning the Center Clutch Unit counterclockwise.
4. Eject the cassette by applying +10.0VDC Power Supply again.
5. After completing the removal procedure, resolder Jumper (J6004).

CYLINDER ROTATION IN STOP MODE

The cylinder will continue to rotate for approximately 5 minutes after the STOP button is pressed in Play mode etc. Eject the tape in order to stop the cylinder.

BLACK SCREWS ON THE CHASSIS

Black Screws are used on the Mechanism Chassis to identify screws that require adjustment.

HOW TO RESET ALL VCR MEMORY FUNCTIONS

To reset (clear) the select language, channel auto set and set clock functions to their initial power on condition (power on, **no** cassette inserted), hold down the PLAY and CH UP buttons on the unit together for more than 5 seconds.
Power will shut off.

HOW TO CONFIRM AUTO CLOCK SET FEATURE (Model: E, F)

1. Connect an RF cable from the output of one unit to the input of the test unit.
2. Select corresponding RF channels.
3. Playback a recording of P.B.S. channel including clock set data and confirm this feature.

VARIABLE VOLTAGE ISOLATION TRANSFORMER

An Isolation Transformer should always be used during the servicing of VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect VCR from being damaged by accidental shorting that may occur during servicing.
Also, when troubleshooting the above type of Power Supply Circuit, a variable isolation transformer is required in order to increase the input voltage slowly.

SPECIAL NOTE

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

REPLACEMENT PROCEDURE FOR LEADLESS (CHIP) COMPONENTS

The following procedures are recommended for the replacement of the leadless components used in this unit.

1. Preparation for replacement
   - a. Soldering Iron
     Use a pencil-type soldering iron that uses less than 30 watts.
   - b. Solder
     Eutectic Solder (Tin 63%, Lead 37%) is recommended.
   - c. Soldering time
     Do not apply heat for more than 4 seconds.
   - d. Preheating
     Leadless capacitor must be preheated before installation. – (266°F ~ 302°F) (130°C ~150°C) for about two minutes.

   Note:
   - a. Leadless components must not be reused after removal.
   - b. Excessive mechanical stress and rubbing of the component electrode must be avoided.

2. Removing the leadless component
   Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove the leadless component with a twisting motion.

   Note:
   - a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action.
   - b. Be careful not to break the copper foil on the printed circuit board.

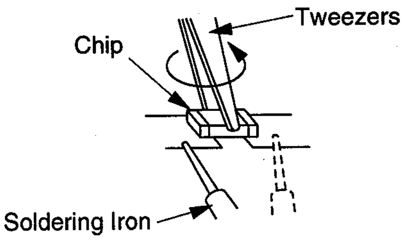


Fig. 8-1

3. Installing the leadless component
   - a. Presolder the contact points on the circuit board.

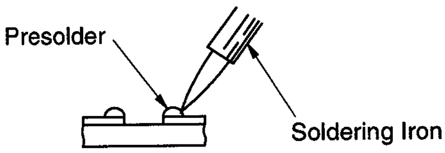


Fig. 8-2

b. Press the part downward with tweezers and solder both electrodes as shown below.

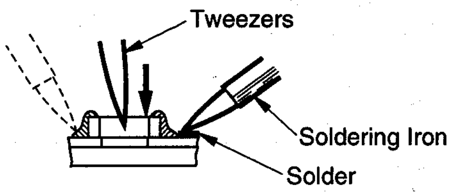


Fig. 8-3

Note:
Do not glue the replacement leadless component to the circuit board.

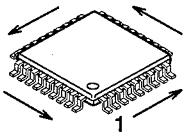
MODEL NO. IDENTIFICATION MARK

Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

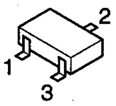
MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

IC, TRANSISTOR AND CHIP PART INFORMATION

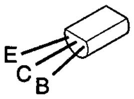
MAIN C.B.A.



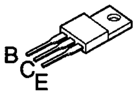
AN3475FBP, AN3962FB-V,
MN675048A5A4,
MN675058A5X



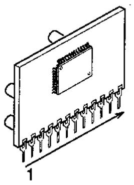
MN12821-R



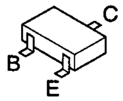
2SD2159



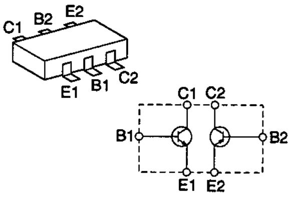
2SD2375



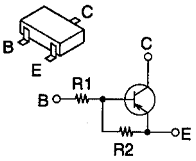
VCRS0213



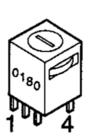
2SD601, 2SD601A,
2SB709, 2SB709A


C1
B2
E2
E1
B1
C2
C1 C2
B1
B2
E1 E2

1MZ1

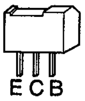

C
B
E
C
R1
B
E
R2

UN211L (R1=4.7K, R2=4.7K)

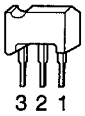


T4101,
EIQ7QF018Q

OPERATION C.B.A.

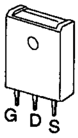


2SD2191TL2

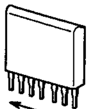


MN13801-R

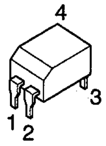
POWER SUPPLY C.B.A.



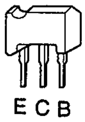
2SK2971001KT,
2SK796.KT



VCRS0214

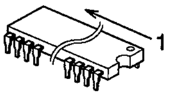


ON3131-R,
ON3161-R

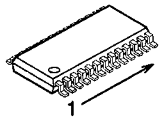


2SD1330,
2SB1050

GENERAL C.B.A./ASS'Y PARTS



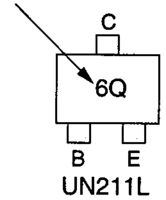
T47C215NF831,
T47C216FF917



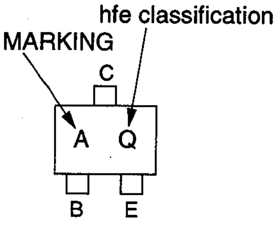
MN3885S, LC74725M9630, AN3809K,
AN3361SB, AN3328S, AN3845SC,
AN3371SB, MN3890S, AN7395S,
D17217GT-538, M62302FP, LC74723M9629

HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.

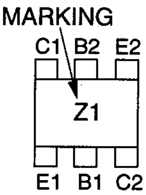
MARKING	PART NO.	MARKING	PART NO.
A	2SB709	Z	2SD601A
B	2SB709A	Z1	1MZ1
Y	2SD601	6Q	UN211L


MARKING
C
6Q
B
E

UN211L

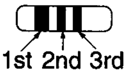

hfe classification
MARKING
C
A
Q
B
E

2SB709


MARKING
C1
B2
E2
Z1
E1
B1
C2

IMZ1

HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.



The widest color band must be read first for value.

(a) RESISTOR

There are two types (ERD10LLJ... and ERD10TLJ...) of chip parts.

1) ERD10LLJ : Refer to above type.
2) ERD10TLJ : The narrow color band must be read first for value.

If this part is included in the parts list, be sure that the color band is read properly when servicing.

(b) CAPACITOR

Because of the width of the color bands, the reading direction cannot be specified. However, the color band can be read on either side. Be sure to confirm the value using the schematic diagram.

CAUTION :

Once chip parts are removed, they must not be reused. Always use a new part when installing a chip part.

— MEMO —

DISASSEMBLY/ASSEMBLY PROCEDURES

DISASSEMBLY/ASSEMBLY PROCEDURES OF CABINET (Model: A, B, C, D)

Disassembly Flowchart

Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.

CAUTION:
Disconnect AC plug before disassembly.

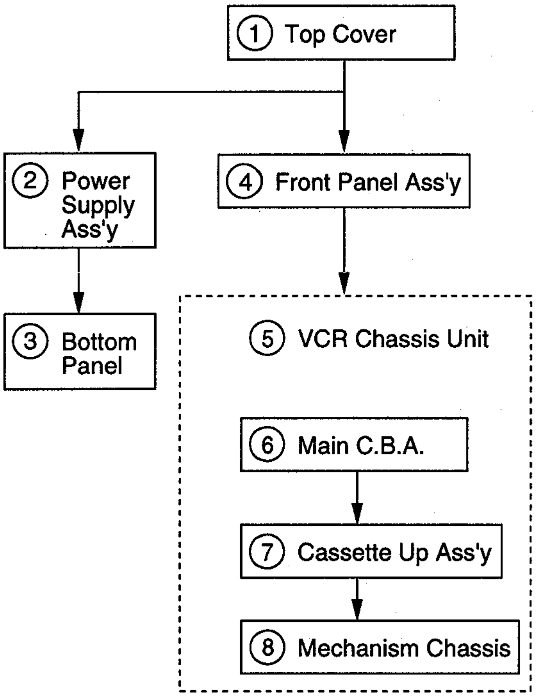

① Top Cover
② Power Supply Ass'y
③ Bottom Panel
④ Front Panel Ass'y
⑤ VCR Chassis Unit
⑥ Main C.B.A.
⑦ Cassette Up Ass'y
⑧ Mechanism Chassis

Fig. D1

Top Cover

Disassembly Procedure

1. Remove 2 Screws (A) and 2 Screws (B).
2. Lift up on the rear portion of the Top Cover and remove.

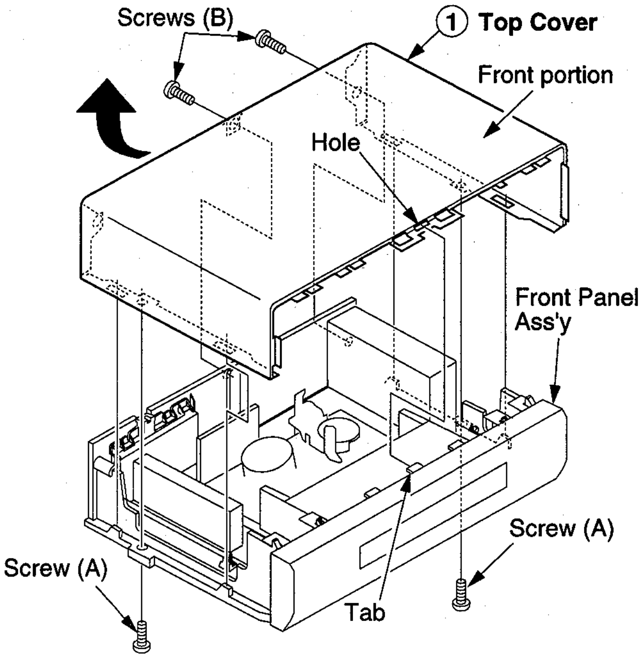

Screws (B)
① Top Cover
Front portion
Hole
Front Panel Ass'y
Screw (A)
Screw (A)
Tab

Fig. D2

Reassembly Notes

1. Install the Top Cover front portion at a downward angle so that the tab on the Front Panel Ass'y fits into the hole in the Top Cover.
   Then, lower the rear portion into place and tighten 2 Screws (A) and 2 Screws (B).

Power Supply Ass'y

Disassembly Procedure

1. Remove Screw with Washer (A).
2. Lift the Power Supply Ass'y to disconnect Connector P1001 and remove the Power Supply Ass'y.

Note:
When removing the Shield Case of the Power Supply Ass'y, twist and straighten the 3 Locking Tabs (A) to remove the Shield Case form the Power Supply Ass'y.

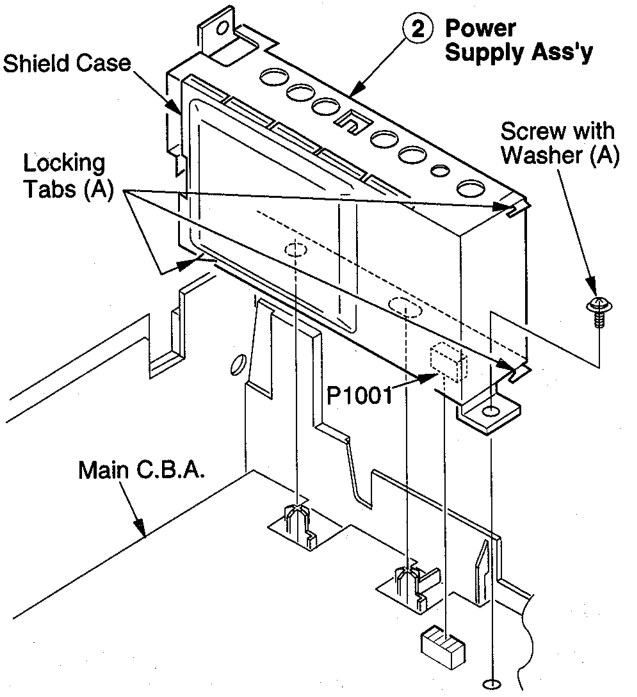

② Power Supply Ass'y
Shield Case
Locking Tabs (A)
Screw with Washer (A)
P1001
Main C.B.A.

Fig. D3

Bottom Panel

Disassembly Procedure

1. Remove 2 Screws with Washers (B), (C), and Screw (C).
2. While pushing 2 Locking Tabs (B) to release, slide the Bottom Panel and remove.

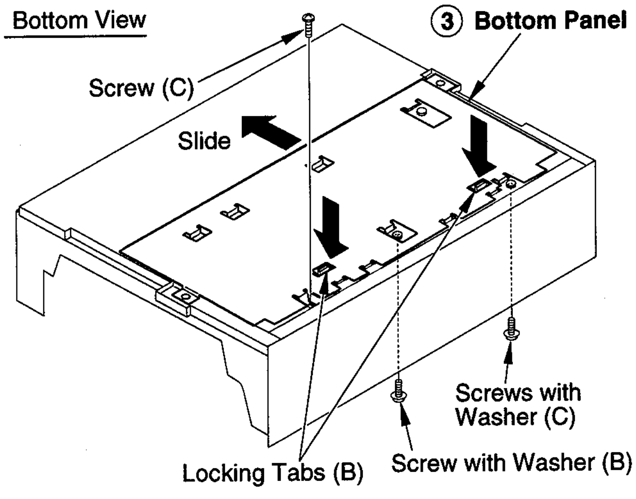

Bottom View
③ Bottom Panel
Screw (C)
Slide
Screws with Washer (C)
Locking Tabs (B)
Screw with Washer (B)

Fig. D4

Front Panel Ass'y

Disassembly Procedure

1. Release 2 Locking Tabs (C) on the top left.
2. Release 2 Locking Tabs (D) on the top right.
3. Release 3 Locking Tabs (E) on the bottom side. Then, remove the Front Panel Ass'y.

Note:
Work carefully so as not to break the Tabs.

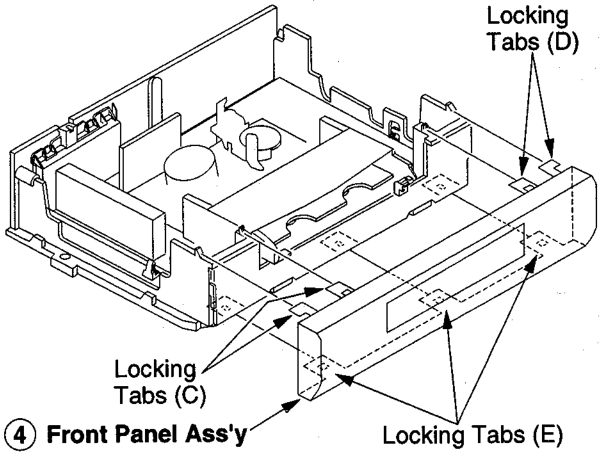

Locking Tabs (D)
Locking Tabs (C)
④ Front Panel Ass'y
Locking Tabs (E)

Fig. D5-1

Reassembly Notes

Installation of Front Panel Ass'y

CAUTION

1) When installing the Front Panel Ass'y, swing the Cassette Door-Lid all the way open until the Cassette Door tab clears the Opener Lever.
2) Make sure that all locking tabs are aligned properly. Then, press the Front Panel straight in.

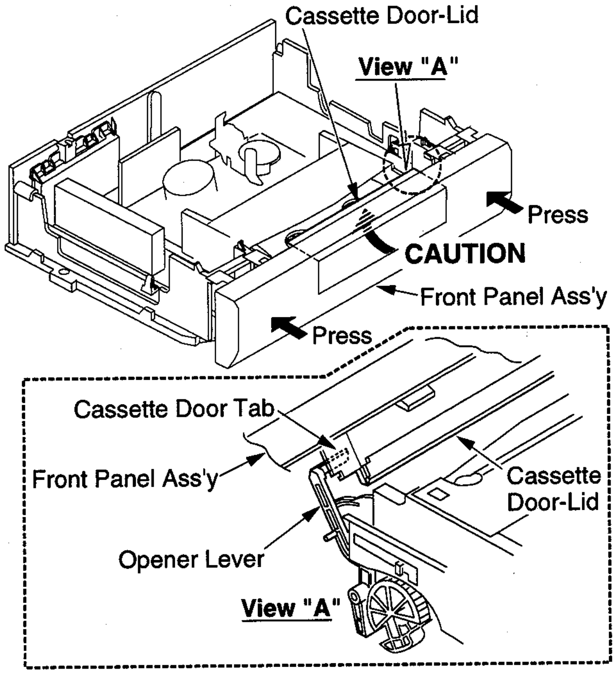

Cassette Door-Lid
View "A"
Press
CAUTION
Front Panel Ass'y
Press
Cassette Door Tab
Front Panel Ass'y
Cassette Door-Lid
Opener Lever
View "A"

Fig. D5-2

VCR Chassis Unit

Disassembly Procedure

1. Slide the Holder Unit (refer to "Method for Manual Loading/Unloading of Mechanism" in Service Notes) to gain access to 2 Screws (D) for removal.
2. Remove Screws (E), (F), (G), (H), and (I).
3. Remove Chassis Angle.

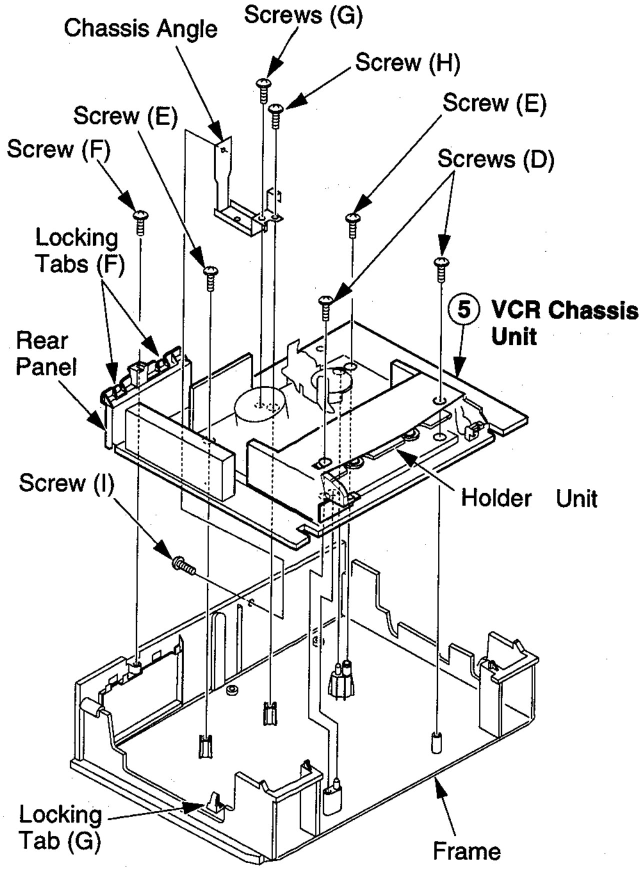

Chassis Angle
Screws (G)
Screw (H)
Screw (E)
Screw (F)
Screw (E)
Screws (D)
Locking
Tabs (F)
⑤ VCR Chassis
Unit
Rear
Panel
Screw (I)
Holder Unit
Locking
Tab (G)
Frame

Fig. D6-1

4. Push 2 Locking Tabs (F) inward to release while lifting the Rear Panel.
5. Push Locking Tab (G) outward while gently lifting the left side of the Main C.B.A. (Portion "A").
6. Lift the right side of the Cassette Up Ass'y (Portion "B") and remove VCR Chassis Unit out of the Frame.

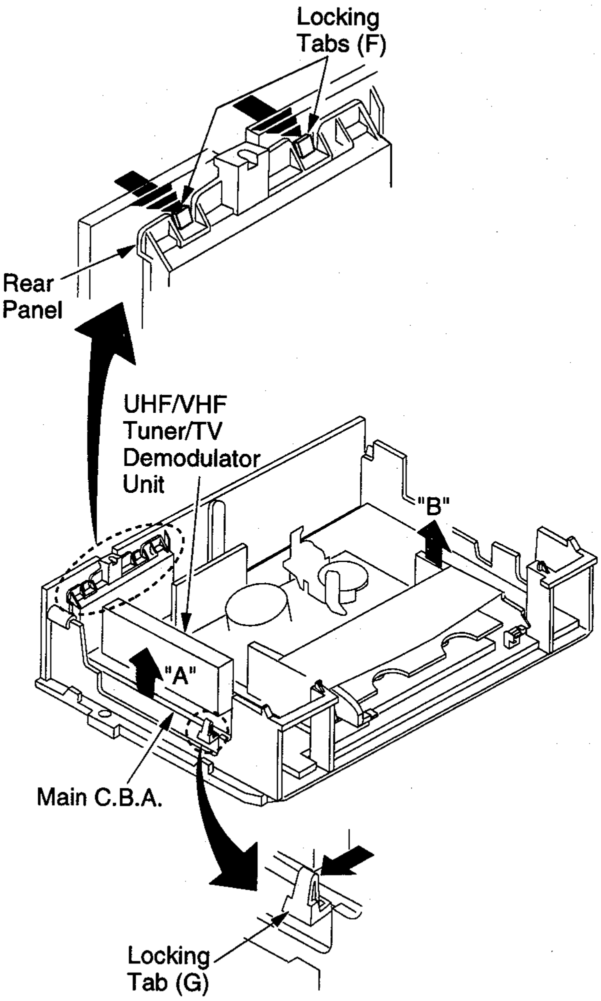

Locking
Tabs (F)
Rear
Panel
UHF/VHF
Tuner/TV
Demodulator
Unit
"B"
"A"
Main C.B.A.
Locking
Tab (G)

Fig. D6-2

Note:

1. DO NOT pull upward on the UHF/VHF Tuner/TV Demodulator Unit because you may crack the Main C.B.A.
2. Work carefully so as not to break tabs.

Reassembly Notes

1. When installing 2 Screws (D), slide the Holder Unit (refer to "Method for Manual Loading/Unloading of Mechanism" in Service Notes) to tighten screws. Then slide it back to the **EJECT** Position.
   Make sure that Mechanism and Cassette Up Ass'y are in the **EJECT** Position.(Refer to "**EJECT** Position confirmation" in Disassembly/Assembly Procedures of Mechanism.)

Main C.B.A.

Disassembly Procedure

1. Disconnect 4 Connectors of P2531, P2552, P3501 and P4001.
2. Carefully lift the Mechanism Chassis and Cassette Up Ass'y straight out from the Main C.B.A.

Note:
Work carefully so as not to break Sensor LED, when lifting the Mechanism Chassis and Cassette Up Ass'y.

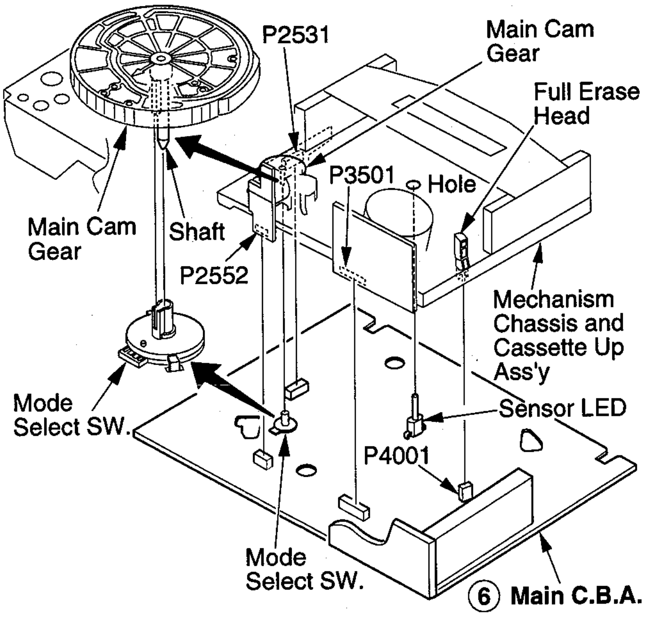

P2531
Main Cam Gear
Full Erase Head
P3501
Hole
Main Cam Gear
Shaft
P2552
Mechanism Chassis and Cassette Up Ass'y
Mode Select SW.
Sensor LED
P4001
Mode Select SW.
⑥ Main C.B.A.

Fig. D7-1

Reassembly Notes

CAUTION

Installation of Mechanism Chassis and Cassette Up Ass'y onto Main C.B.A.

1) Make sure the Mode Select SW. on the Main C.B.A. is in **EJECT** position. If not, rotate the Mode Select SW. until the alignment projection is in the **EJECT** Position.

   Make sure the Mechanism and Cassette Up Ass'y are in the **EJECT** Position. (Refer to "**EJECT** Position confirmation" in Disassembly/Assembly Procedures of Mechanism.)

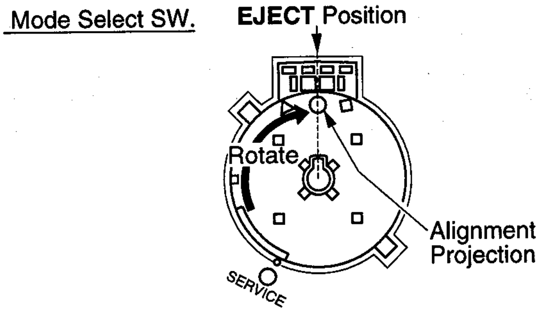

Mode Select SW.
EJECT Position
Rotate
Alignment Projection
SERVICE

Fig. D7-2

2) Install the Mechanism Chassis and Cassette Up Ass'y straight onto the Main C.B.A. so that the Sensor LED clears the hole in the Mechanism Chassis and that 4 Connectors (P2531, P2552, P3501, and P4001) are aligned and seated securely.

Cassette Up Ass'y

Disassembly Procedure

1. Slide Holder Unit (refer to "Method for Manual Loading/ Unloading of Mechanism" in Service Notes) to gain access to 2 Screws (J) for removal.
2. Remove Screw (K).
3. Unhook Spring (A).
4. Slide the Cassette Up Ass'y towards the front to release Locking Tab (H). Then, lift it up and remove.

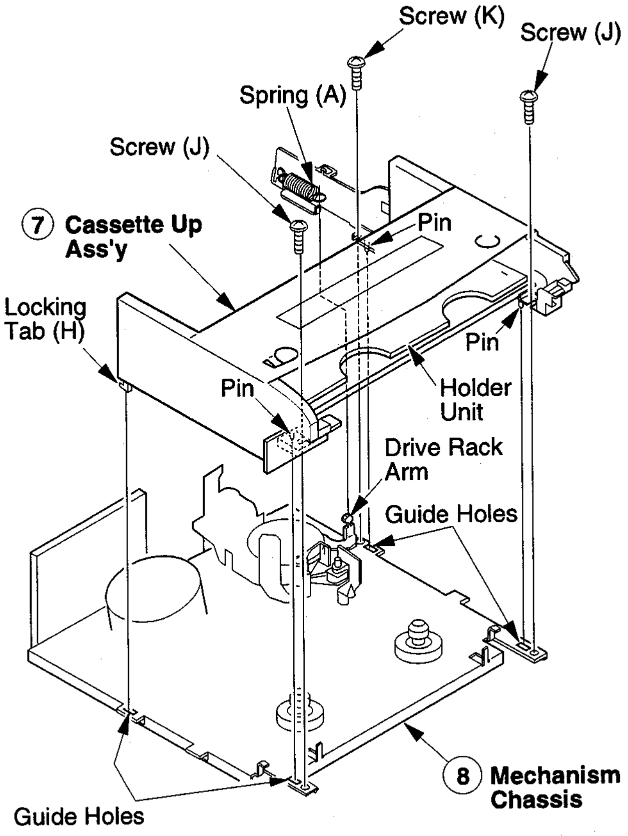

Screw (K)
Screw (J)
Spring (A)
Screw (J)
⑦ Cassette Up Ass'y
Pin
Locking Tab (H)
Pin
Pin
Holder Unit
Drive Rack Arm
Guide Holes
⑧ Mechanism Chassis
Guide Holes

Fig. D8

Reassembly Notes

Installation of Cassette Up Ass'y

1) Confirm that the 3 pins and Locking Tab (H) under the Cassette Up Ass'y are in each of the 4 Guide Holes on the Mechanism Chassis when installing the Cassette Up Ass'y. Then, slide the Cassette Up Ass'y towards the back.
2) Slide Holder Unit (refer to "Method for Manual Loading/ Unloading of Mechanism" in Service Notes) to tighten 2 Screws (J) and Screw (K).
   Be careful not to tighten screws too much, or the Cassette Up Ass'y may be bent outward.
   Then,slide it back to the **EJECT** Position.
4) Hook Spring (A) to the Drive Rack Arm on the Mechanism Chassis.

DISASSEMBLY/ASSEMBLY PROCEDURES OF CABINET (Model: E, F)

Disassembly Flowchart

Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.

CAUTION:
Disconnect AC plug before disassembly.

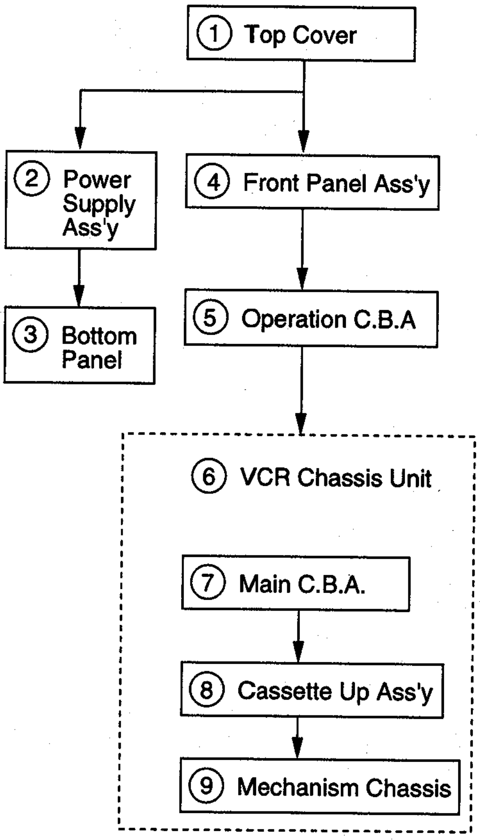

① Top Cover
② Power Supply Ass'y
③ Bottom Panel
④ Front Panel Ass'y
⑤ Operation C.B.A
⑥ VCR Chassis Unit
⑦ Main C.B.A.
⑧ Cassette Up Ass'y
⑨ Mechanism Chassis

Fig. D1

Top Cover

Disassembly Procedure

1. Remove 2 Screws (A) and 3 Screws (B).
2. Lift up on the rear portion of the Top Cover and remove.

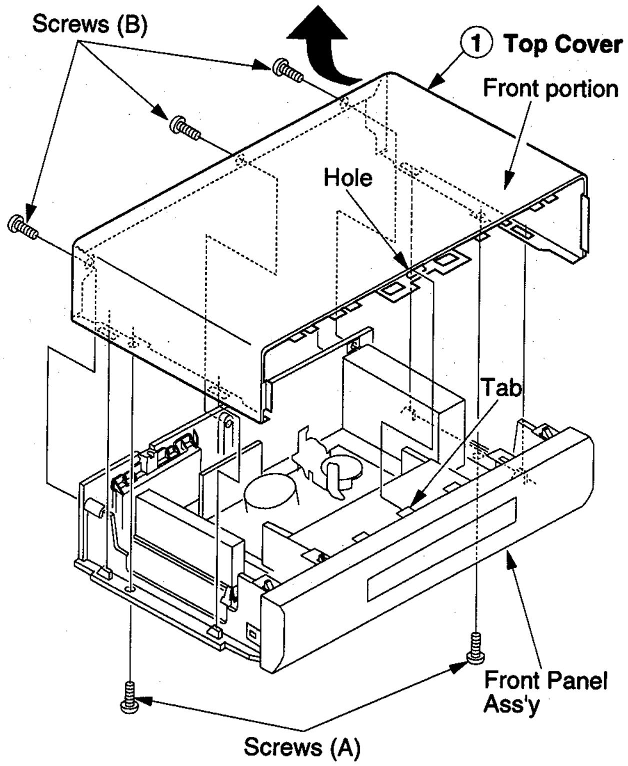

Screws (B)
① Top Cover
Front portion
Hole
Tab
Front Panel Ass'y
Screws (A)

Fig. D2

Reassembly Notes

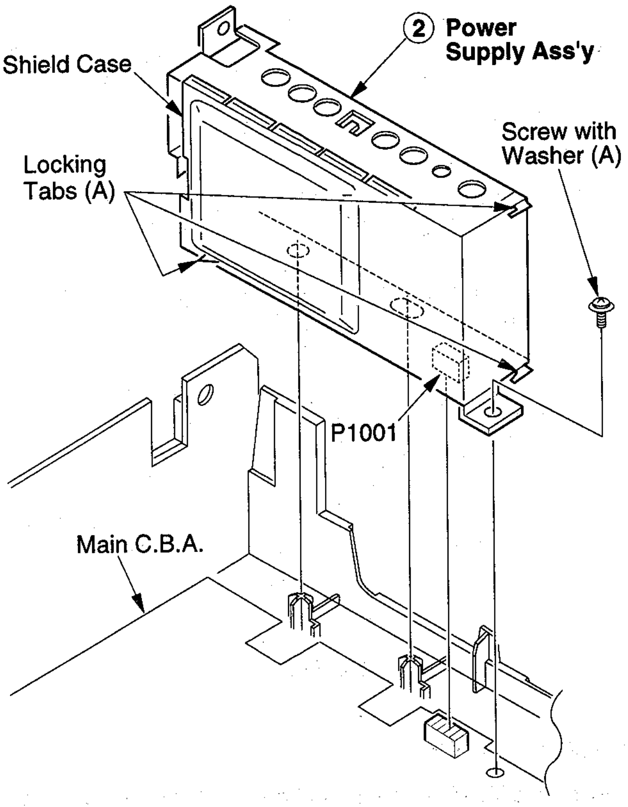
1. Install the Top Cover front portion at a downward angle so that the tabs on the Front Panel Ass'y fits into the hole in the Top Cover.
   Then, lower the rear portion into place and tighten 2 Screws (A) and 3 Screws (B).

Power Supply Ass'y

Disassembly Procedure

1. Remove Screw with Washer (A).
2. Lift the Power Supply Ass'y to disconnect Connector P1001 and remove the Power Supply Ass'y.

Note:
When removing the Shield Case of the Power Supply Ass'y, twist and straighten the 3 Locking Tabs (A) to remove the Shield Case form the Power Supply Ass'y.



Shield Case
② Power Supply Ass'y
Locking Tabs (A)
Screw with Washer (A)
P1001
Main C.B.A.

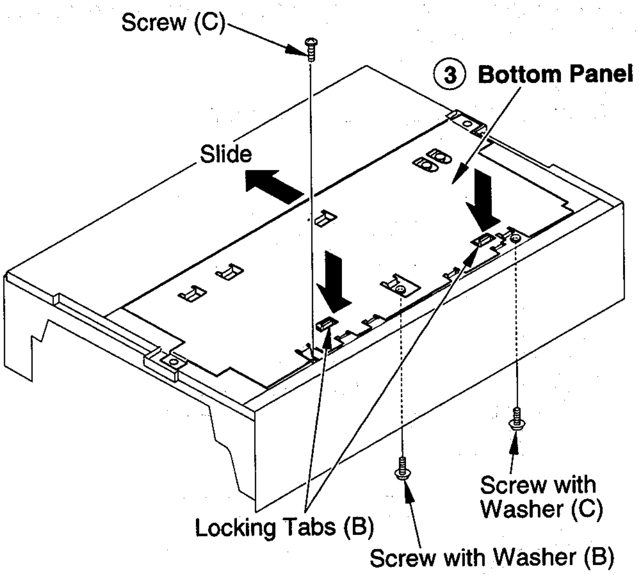
Fig. D3

Bottom Panel

Disassembly Procedure

1. Remove 2 Screws with Washers (B), (C), and Screw (C).
2. While pushing 2 Locking Tabs (B) to release, slide the Bottom Panel and remove.

Bottom View



Screw (C)
③ Bottom Panel
Slide
Screw with Washer (C)
Locking Tabs (B)
Screw with Washer (B)

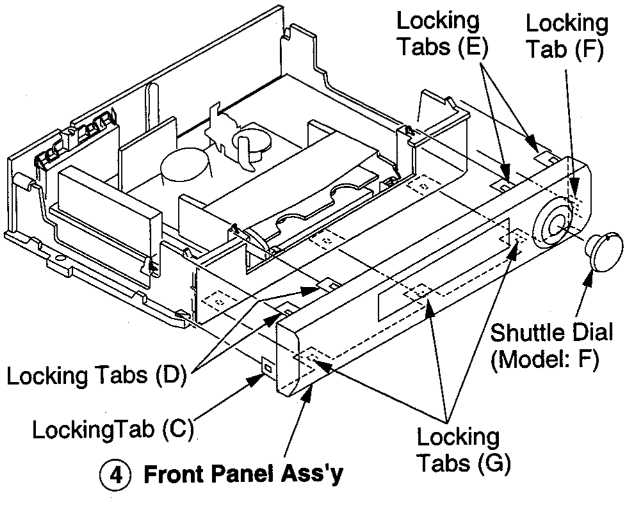
Fig. D4

Front Panel Ass'y

Disassembly Procedure

1. **(Model: F)**
   Pull off the Shuttle Dial
2. Release Locking Tab (C) on the left side.
3. Release 2 Locking Tabs (D) on the top left.
4. Release 2 Locking Tabs (E) on the top right.
5. Release Locking Tab (F) on the right side.
6. Release 3 Locking Tabs (G) on the bottom side. Then, remove the Front Panel Ass'y.

Note:
Work carefully so as not to break the Tabs.



Locking Tabs (E)
Locking Tab (F)
Shuttle Dial (Model: F)
Locking Tabs (D)
LockingTab (C)
④ Front Panel Ass'y
Locking Tabs (G)

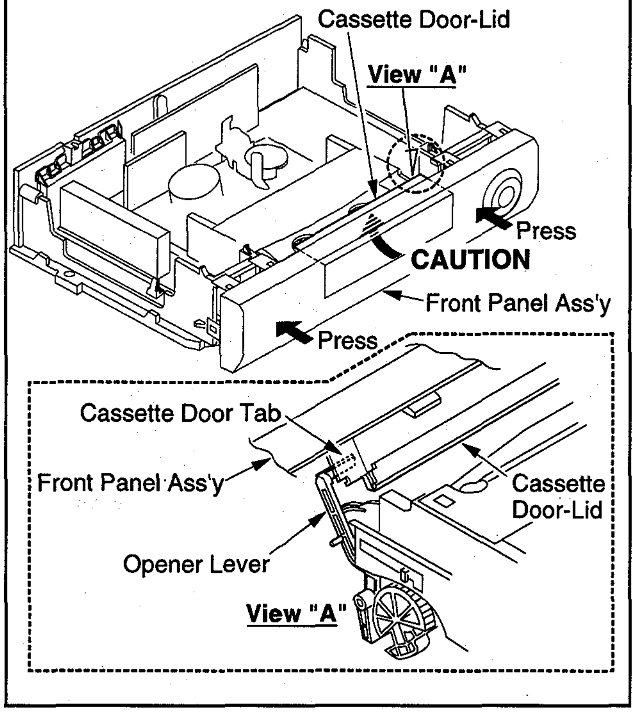
Fig. D5-1

Reassembly Notes

1. **Installation of Front Panel Ass'y**

CAUTION

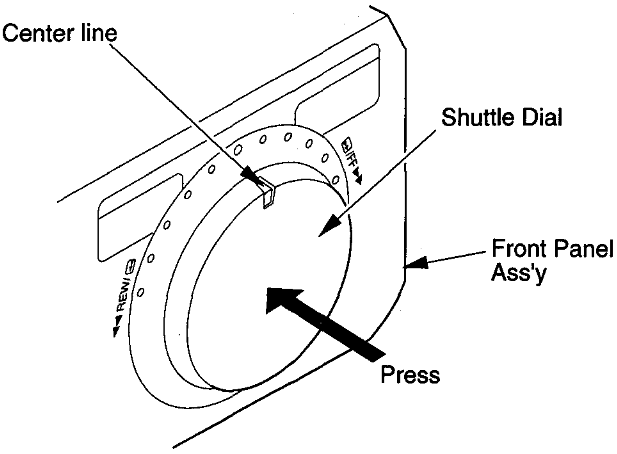
1) When installing the Front Panel Ass'y, swing the Cassette Door -Lid all the way open until the Cassette Door tab clears the Opener Lever.
2) Make sure that all locking tabs are aligned properly. Then, press the Front Panel straight in.



Cassette Door-Lid
View "A"
Press
CAUTION
Front Panel Ass'y
Press
Cassette Door Tab
Front Panel Ass'y
Cassette Door-Lid
Opener Lever
View "A"

Fig. D5-2

2. **(Model: F)**
   Installation of Shuttle Dial
   1) Press the Shuttle Dial into place so that the center line is at top as shown.



Center line
Shuttle Dial
Front Panel Ass'y
Press
REW
FF

Fig. D5-3

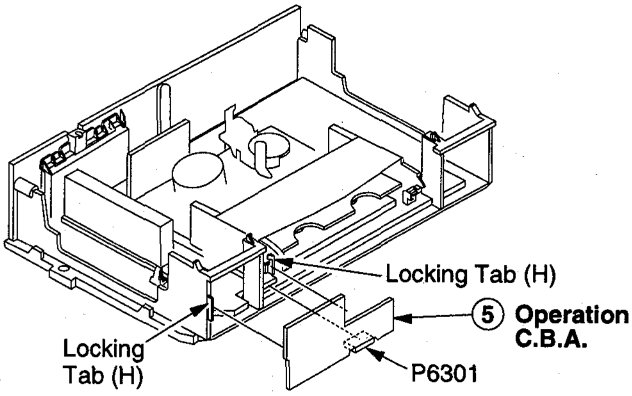
Operation C.B.A. (Model: E)

Disassembly Procedure

1. Release 2 Locking Tabs (H).

   Note:
   Work carefully so as not to break the Tabs.

2. Disconnect Connector P6301 on the Operation C.B.A.



Locking Tab (H)
⑤ Operation C.B.A.
Locking Tab (H)
P6301

Fig. D6-1

Operation C.B.A. (Model: F)

Disassembly Procedure

1. Release 3 Locking Tabs (H).

   Note:
   Work carefully so as not to break the Tabs.

2. Disconnect 2 Connectors P6301 and P6302 on the Operation C.B.A.

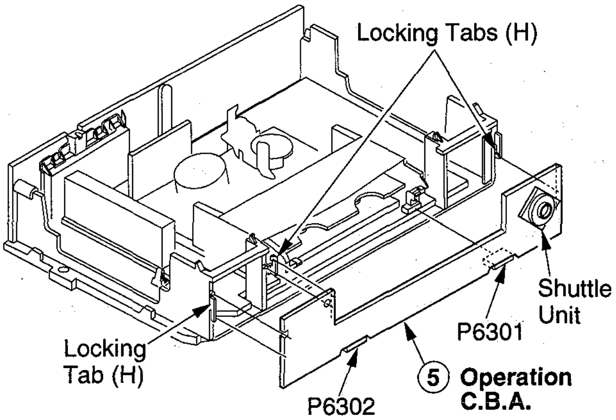

Locking Tabs (H)
Locking Tab (H)
Shuttle Unit
P6301
P6302
⑤ Operation C.B.A.

Fig. D6-2

Note:
When removing the Shuttle Unit from the Operation C.B.A., release 2 Locking Tabs (I) and disconnect Connector P6310 as shown below.

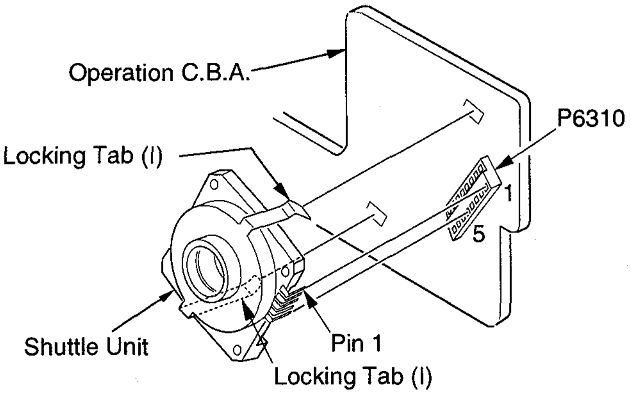

Operation C.B.A.
Locking Tab (I)
P6310
1
5
Shuttle Unit
Pin 1
Locking Tab (I)

Fig. D6-3

Reassembly Notes

Installation of Shuttle Unit

1) Make sure the Locking Tabs (I) and pins are lined up, install the Shuttle Unit to the Operation C.B.A.

VCR Chassis Unit

Disassembly Procedure

1. Slide the Holder Unit (refer to "Method for Manual Loading/Unloading of Mechanism" in Service Notes) to gain access to 2 Screws (D) for removal.
2. Remove Screws (E), (F), (G), (H), and (I).
3. Remove Chassis Angle.

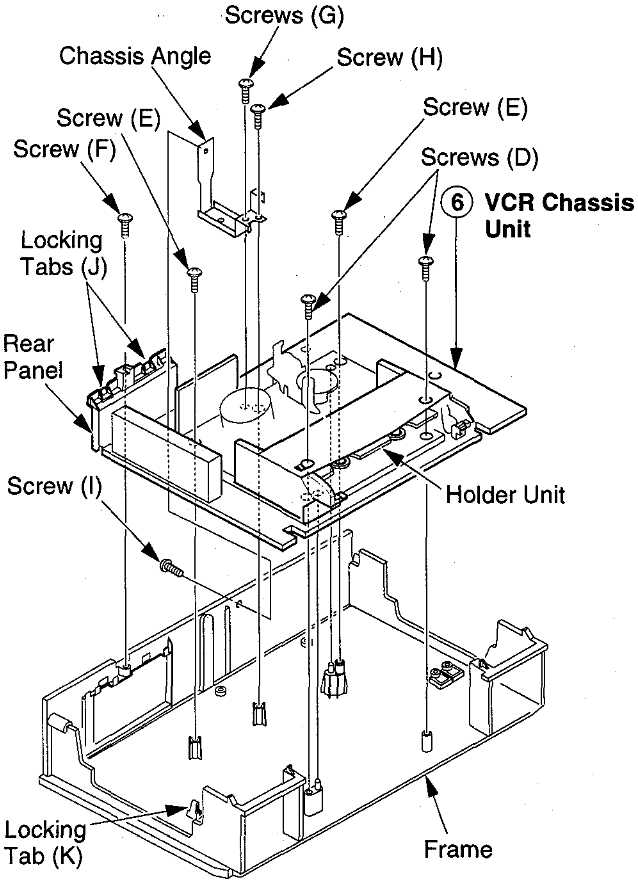

Screws (G)
Chassis Angle
Screw (H)
Screw (E)
Screw (F)
Screw (E)
Screws (D)
⑥ VCR Chassis Unit
Locking Tabs (J)
Rear Panel
Holder Unit
Screw (I)
Locking Tab (K)
Frame

Fig. D7-1

4. Push 2 Locking Tabs (J) inward to release while lifting the Rear Panel.
5. Push Locking Tab (K) outward while gently lifting the left side of the Main C.B.A. (Portion "A").
6. Lift the right side of the Cassette Up Ass'y (Portion "B") and remove VCR Chassis Unit out of the Frame.

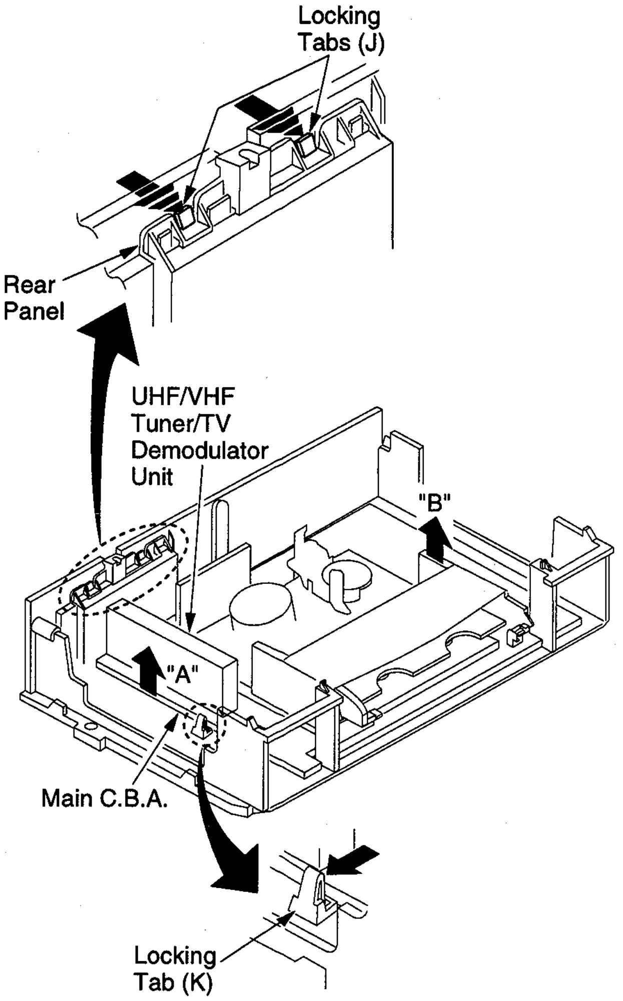

Locking Tabs (J)
Rear Panel
UHF/VHF Tuner/TV Demodulator Unit
"B"
"A"
Main C.B.A.
Locking Tab (K)

Fig. D7-2

Note:

1. DO NOT pull upward on the UHF/VHF Tuner/TV Demodulator Unit because you may crack the Main C.B.A.
2. Work carefully so as not to break tabs.

Reassembly Notes

1. When installing 2 Screws (D), slide the Holder Unit (refer to "Method for Manual Loading/Unloading of Mechanism" in Service Notes) to tighten screws. Then slide it back to the **EJECT** Position.
   Make sure that Mechanism and Cassette Up Ass'y are in the **EJECT** Position.(Refer to "**EJECT** Position confirmation" in Disassembly/Assembly Procedures of Mechanism.)

Main C.B.A.

Disassembly Procedure

1. Disconnect 4 Connectors of P2531, P2552, P3501 and P4001.
2. Carefully lift the Mechanism Chassis and Cassette Up Ass'y straight out from the Main C.B.A.

Note:
Work carefully so as not to break Sensor LED, when lifting the Mechanism Chassis and Cassette Up Ass'y.

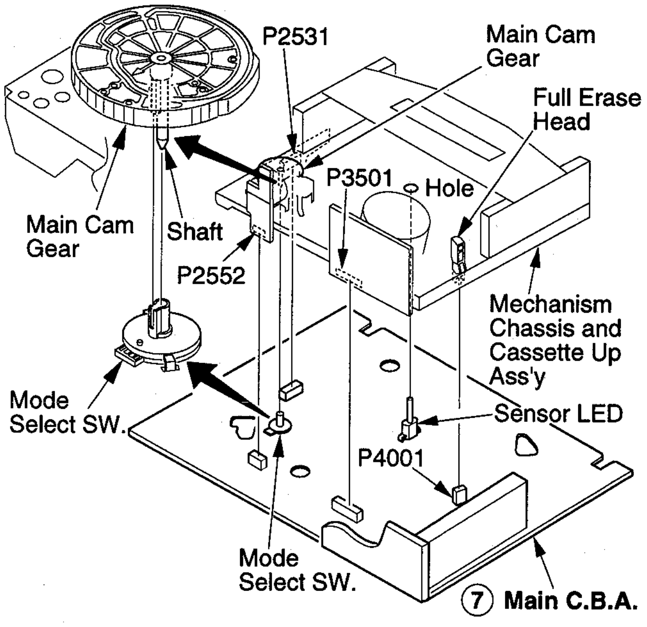

P2531
Main Cam Gear
Full Erase Head
P3501
Hole
Main Cam Gear
Shaft
P2552
Mechanism Chassis and Cassette Up Ass'y
Mode Select SW.
Sensor LED
P4001
Mode Select SW.
⑦ Main C.B.A.

Fig. D8-1

Reassembly Notes

CAUTION

Installation of Mechanism Chassis and Cassette Up Ass'y onto Main C.B.A.

1) Make sure the Mode Select SW. on the Main C.B.A. is in **EJECT** position. If not, rotate the Mode Select SW. until the alignment projection is in the **EJECT** Position.

   Make sure the Mechanism and Cassette Up Ass'y are in the **EJECT** Position. (Refer to "**EJECT** Position confirmation" in Disassembly/Assembly Procedures of Mechanism.)

Mode Select SW.

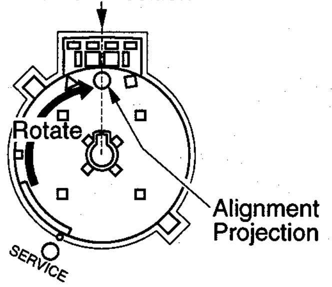

EJECT Position
Rotate
Alignment Projection
SERVICE

Fig. D8-2

2) Install the Mechanism Chassis and Cassette Up Ass'y straight onto the Main C.B.A. so that the Sensor LED clears the hole in the Mechanism Chassis and that 4 Connectors (P2531, P2552, P3501, and P4001) are aligned and seated securely.

Cassette Up Ass'y

Disassembly Procedure

1. Slide Holder Unit (refer to "Method for Manual Loading/ Unloading of Mechanism" in Service Notes) to gain access to 2 Screws (J) for removal.
2. Remove Screw (K).
3. Unhook Spring (A).
4. Slide the Cassette Up Ass'y towards the front to release Locking Tab (L). Then, lift it up and remove.

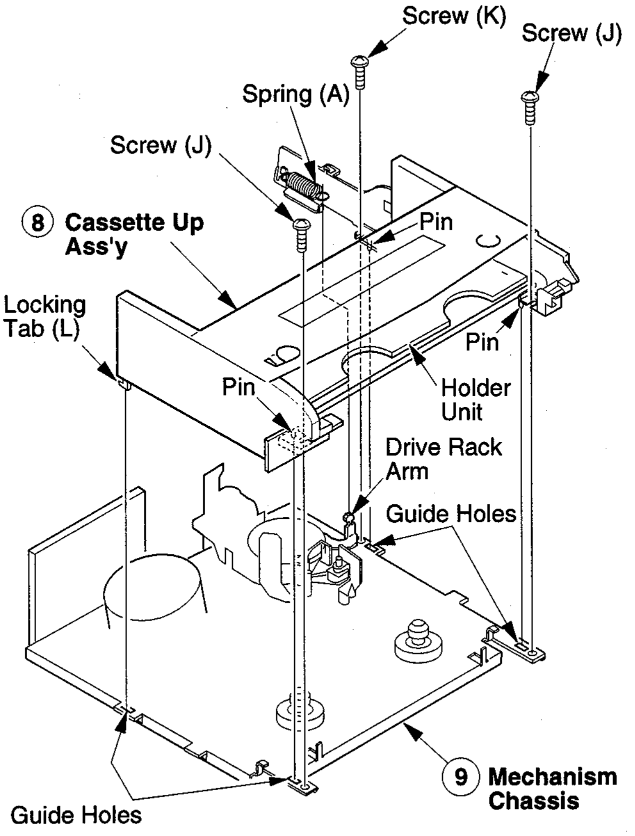

Screw (K)
Screw (J)
Spring (A)
Screw (J)
⑧ Cassette Up Ass'y
Pin
Locking Tab (L)
Pin
Pin
Holder Unit
Drive Rack Arm
Guide Holes
⑨ Mechanism Chassis
Guide Holes

Fig. D9

Reassembly Notes

Installation of Cassette Up Ass'y

1) Confirm that the 3 pins and Locking Tab (L) under the Cassette Up Ass'y are in each of the 4 Guide Holes on the Mechanism Chassis when installing the Cassette Up Ass'y. Then, slide the Cassette Up Ass'y towards the back.
2) Slide Holder Unit (refer to "Method for Manual Loading/ Unloading of Mechanism" in Service Notes) to tighten 2 Screws (J) and Screw (K).
   Be careful not to tighten screws too much, or the Cassette Up Ass'y may be bent outward.
   Then, slide it back to the **EJECT** Position.
4) Hook Spring (A) to the Drive Rack Arm on the Mechanism Chassis.

DISASSEMBLY/ASSEMBLY PROCEDURES OF MECHANISM

Disassembly Method

This chart indicates Step/Location No. of Parts to be serviced and prior steps to gain access items to be serviced when disassembling. When reassembling, perform the step(s) in the reverse order.

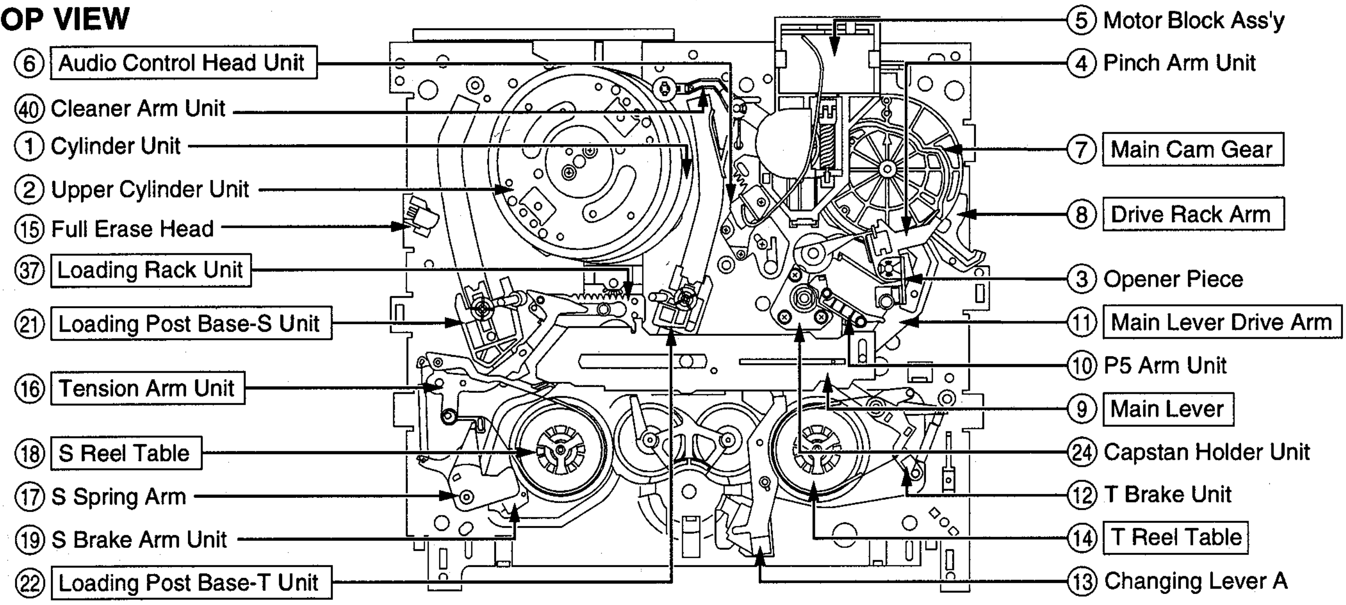
Step /Loc. No.	Part	Prior Step(s)	Step /Loc. No.	Part	Prior Step(s)	Step /Loc. No.	Part	Prior Step(s)	Step /Loc. No.	Part	Prior Step(s)
①	Cylinder Unit	------------	⑪	Main Lever Drive Arm	3, 4, 5, 7, 8, 9	㉑	Loading Post Base-S Unit	16	㉛	S Loading Arm Unit	30
②	Upper Cylinder Unit	------------	⑫	T Brake Unit	9	㉒	Loading Post Base-T Unit	9, 20	㉜	Center Clutch Unit	------------
③	Opener Piece	------------	⑬	Changing Lever A	9	㉓	Capstan Rotor Unit	------------	㉝	Changing Gear Spring	32
④	Pinch Arm Unit	3	⑭	T Reel Table	9, 12, 13	㉔	Capstan Holder Unit	23	㉞	Changing Gear	32, 33
⑤	Motor Block Ass'y	------------	⑮	Full Erase Head	------------	㉕	SS Brake Arm Unit	------------	㉟	Changing Lever-B	32, 33, 34
⑥	Audio Control Head Unit	5	⑯	Tension Arm Unit	------------	㉖	Junction C.B.A.	------------	㊱	Idler Arm Unit	32, 33, 34
⑦	Main Cam Gear	3, 4, 5	⑰	S Spring Arm	------------	㉗	Capstan Stator Unit	23, 25, 26	㊲	Loading Rack Unit	9, 30
⑧	Drive Rack Arm	3, 4, 5, 7	⑱	S Reel Table	16, 17	㉘	Sub Rotor	23, 25, 26, 27	㊳	Grounding Plate Unit	------------
⑨	Main Lever	------------	⑲	S Brake Arm Unit	9, 16, 17, 18	㉙	PCB Holder	23, 25, 26, 27	㊴	FG Head	------------
⑩	P5 Arm Unit	9	⑳	Main Lever Guide	9	㉚	T Loading Arm Unit	------------	㊵	Cleaner Arm Unit	------------

Step/Loc. No.: Order of steps in procedure. Part : Part to be removed or installed. Prior Step(s) : Steps to be completed prior to the current step.

Note: When the mechanical parts surrounded by rectangle are removed or replaced, be sure to perform necessary adjustment or alignment procedures according to the mechanical adjustment procedures section and disassembly/assembly procedures of mechanism section.

Perform all disassembly and alignments procedures in **EJECT** Position.

TOP VIEW


⑥ Audio Control Head Unit
㊵ Cleaner Arm Unit
① Cylinder Unit
② Upper Cylinder Unit
⑮ Full Erase Head
㊲ Loading Rack Unit
㉑ Loading Post Base-S Unit
⑯ Tension Arm Unit
⑱ S Reel Table
⑰ S Spring Arm
⑲ S Brake Arm Unit
㉒ Loading Post Base-T Unit
⑤ Motor Block Ass'y
④ Pinch Arm Unit
⑦ Main Cam Gear
⑧ Drive Rack Arm
③ Opener Piece
⑪ Main Lever Drive Arm
⑩ P5 Arm Unit
⑨ Main Lever
㉔ Capstan Holder Unit
⑫ T Brake Unit
⑭ T Reel Table
⑬ Changing Lever A

BOTTOM VIEW

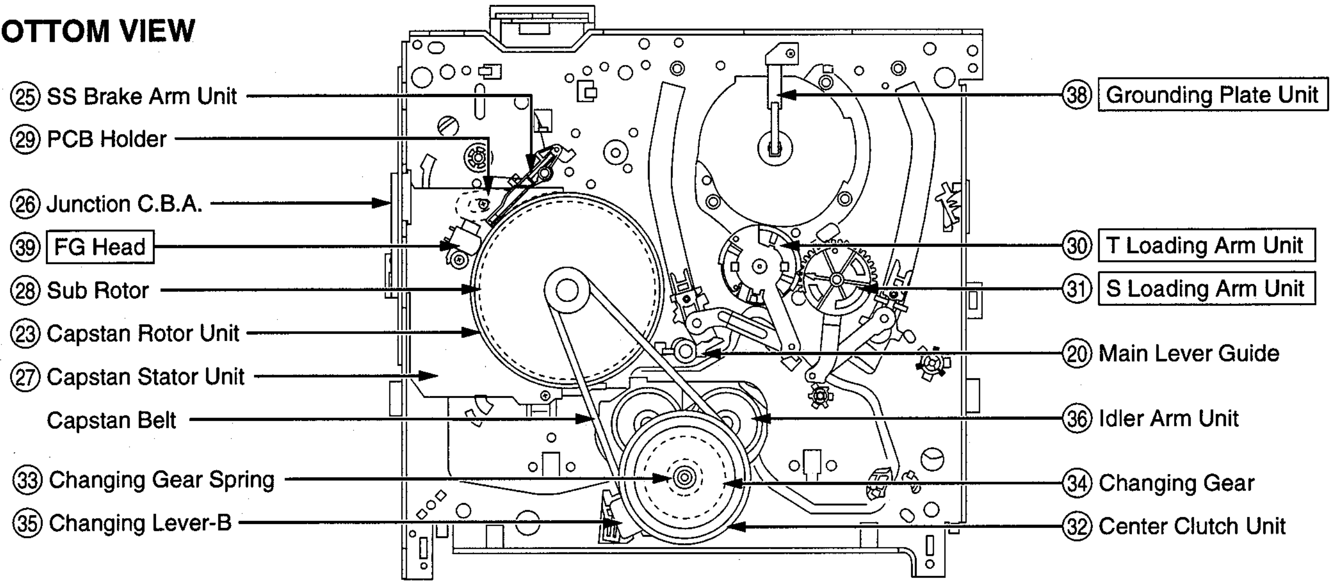

㉕ SS Brake Arm Unit
㉙ PCB Holder
㉖ Junction C.B.A.
㊴ FG Head
㉘ Sub Rotor
㉓ Capstan Rotor Unit
㉗ Capstan Stator Unit
Capstan Belt
㉝ Changing Gear Spring
㉟ Changing Lever-B
㊳ Grounding Plate Unit
㉚ T Loading Arm Unit
㉛ S Loading Arm Unit
⑳ Main Lever Guide
㊱ Idler Arm Unit
㉞ Changing Gear
㉜ Center Clutch Unit

Fig. J1-1

EJECT Position Confirmation

Check the following alignment points to confirm that the Mechanism and Cassette Up Ass'y are in the **EJECT** Position from the top side.

(By using alignment points ❈1 & ❈2, it is possible to roughly confirm the S & T Loading Arm Units from the top side, even though they are located on the bottom side of the mechanism chassis.)

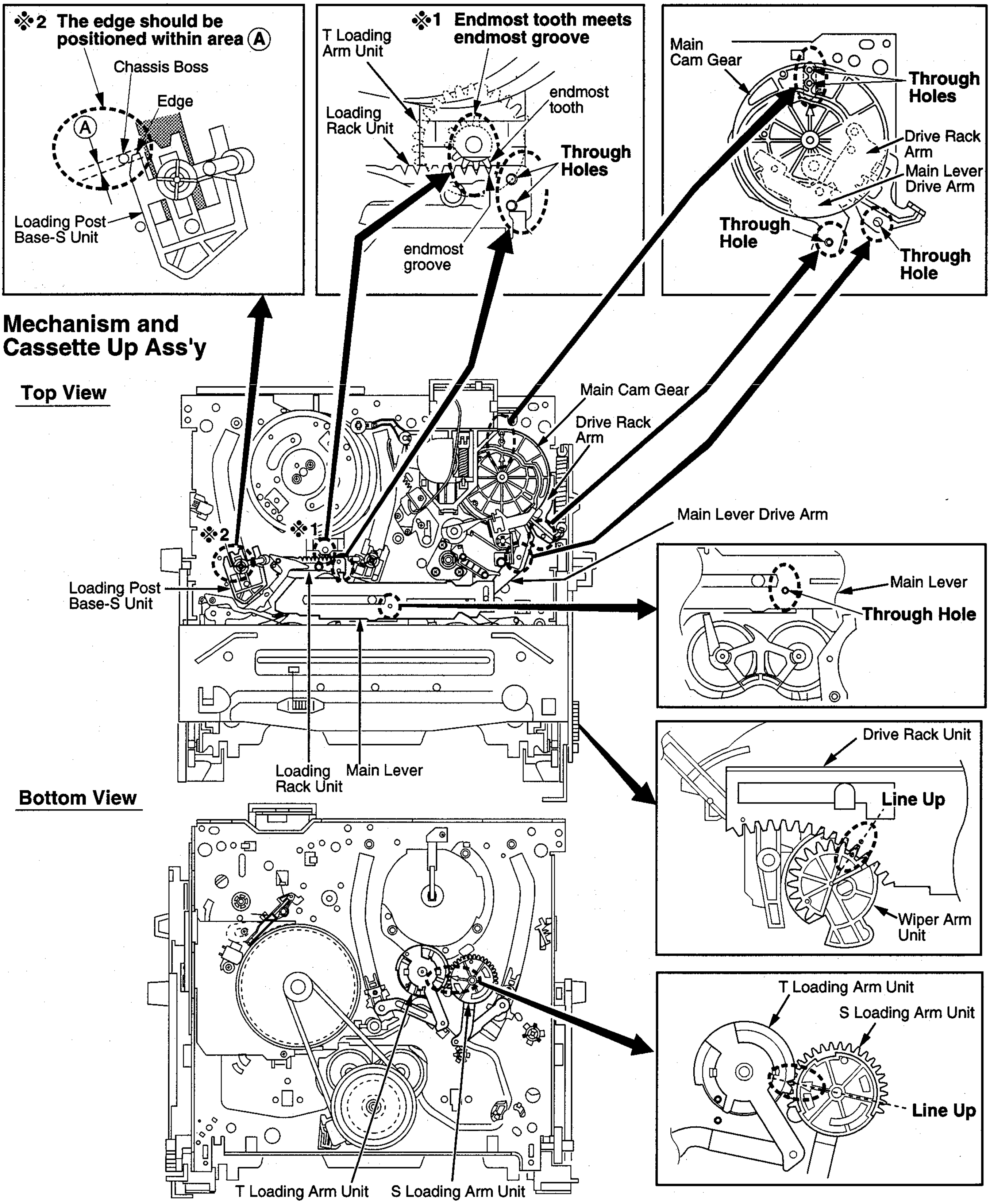

❈2 The edge should be positioned within area Ⓐ
Chassis Boss
Edge
Ⓐ
Loading Post Base-S Unit
❈1 Endmost tooth meets endmost groove
T Loading Arm Unit
Loading Rack Unit
endmost tooth
Through Holes
endmost groove
Main Cam Gear
Through Holes
Drive Rack Arm
Main Lever Drive Arm
Through Hole
Through Hole
Mechanism and Cassette Up Ass'y
Top View
Main Cam Gear
Drive Rack Arm
Main Lever Drive Arm
❈2
❈1
Loading Post Base-S Unit
Main Lever
Through Hole
Drive Rack Unit
Line Up
Wiper Arm Unit
Loading Rack Unit
Main Lever
Bottom View
T Loading Arm Unit
S Loading Arm Unit
Line Up
T Loading Arm Unit
S Loading Arm Unit

Fig. J1-2

Cylinder Unit

Disassembly Procedure

1. Remove 3 Screws (A) and 2 Screws with Washers (A). Then, lift the Cylinder Unit and the Head Amp C.B.A. out from the mechanism.
2. Unsolder P3502 and P3503. Then, remove the Head Amp C.B.A.

Note:
Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing.

CAUTION:
When removing the Cylinder Unit, avoid touching IC2601 on the Head Amp C.B.A. because it is **HOT** during operation.

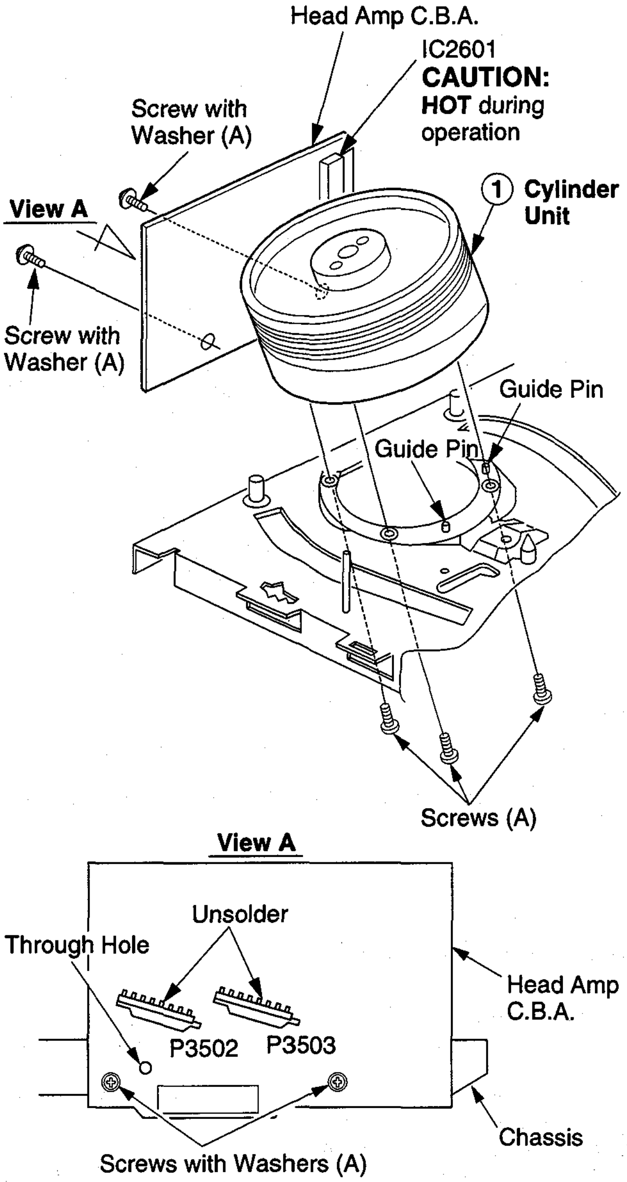

Head Amp C.B.A.
IC2601
CAUTION:
HOT during operation
Screw with Washer (A)
View A
① Cylinder Unit
Screw with Washer (A)
Guide Pin
Guide Pin
Screws (A)
View A
Unsolder
Through Hole
Head Amp C.B.A.
P3502
P3503
Chassis
Screws with Washers (A)

Fig. J2-1

Reassembly Notes

1. Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing.
2. **Installation of Cylinder Unit**
   1) Install the Cylinder Unit so that the 2 holes on the lower surface of the Cylinder Unit fit over the 2 Guide Pins on the Cylinder Base and loosely secure it with 3 Screws (A).
   2) Install the Head Amp C.B.A. so that the hole on the Head Amp C.B.A. lines up with the hole on the chassis and secure it with 2 Screws with Washers (A).
   3) Position the Cylinder Unit so that foil patterns of connectors (P3502 and P3503) and Head Amp C.B.A. are aligned, and tighten 3 Screws (A).
   4) Solder connectors (P3502 and P3503).
3. **Adjustment of Grounding Plate Unit**
   1) After installing, make sure that the Grounding Plate Unit, on the bottom side of mechanism chassis, is positioned on the right side of the Cylinder shaft so that the center line of the plate is just less than 1.0 mm measured from the center of the Cylinder shaft.
   If required, adjust the plate position by loosening Black Screw (A).
   Never install the Grounding Plate Unit on the left side of the Cylinder shaft.
   Incorrect positioning will cause cylinder buzz.

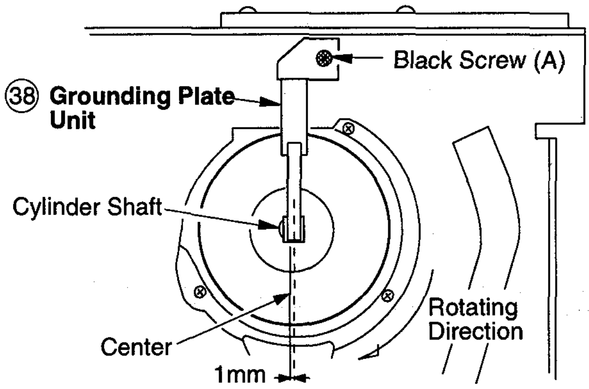

Black Screw (A)
㊳ Grounding Plate Unit
Cylinder Shaft
Rotating Direction
Center
1mm

Fig. J2-2

   2) After installing, perform the "Tape Interchangeability Adjustment" procedures.

Upper Cylinder Unit

Disassembly Procedure

1. Remove 2 Screws with Washers (B).
2. Carefully lift the Upper Cylinder Unit from the shaft.

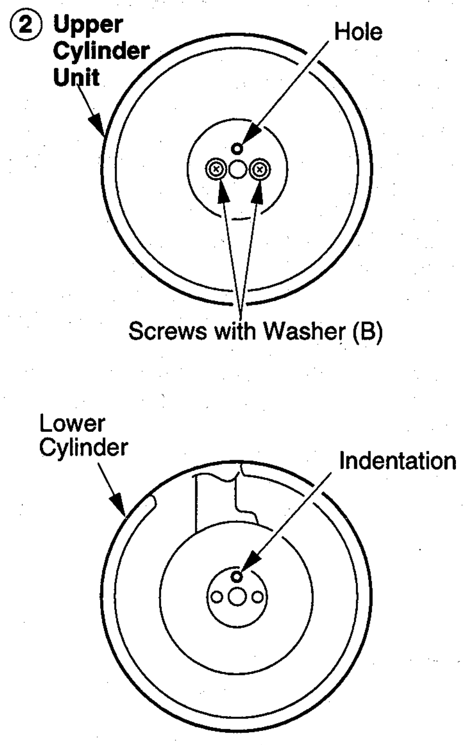

② Upper Cylinder Unit
Hole
Screws with Washer (B)
Lower Cylinder
Indentation

Fig. J3

Note:
Use extreme care when removing or replacing the Upper Cylinder Unit. Do not touch the Video Heads during servicing.

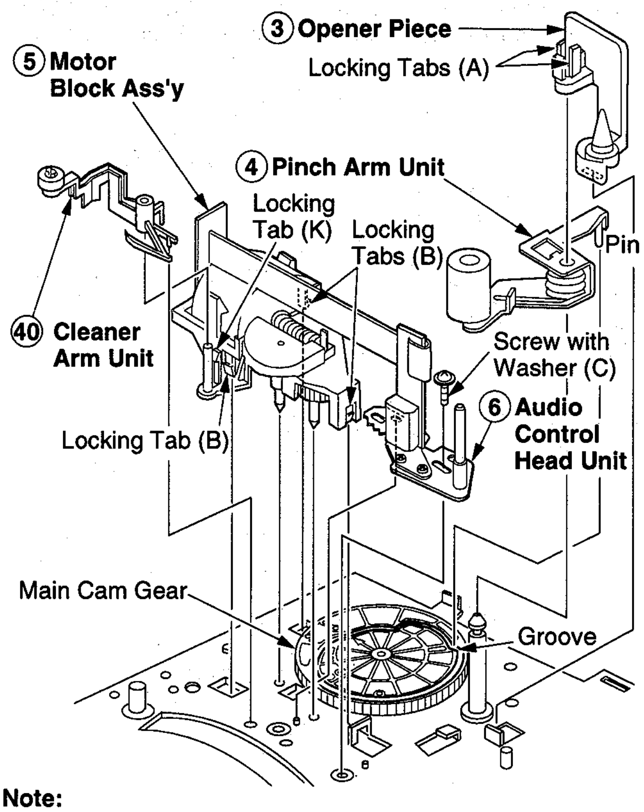
Reassembly Notes

1. Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing.
2. **(Model: F)**
   Do not replace Upper Cylinder Units using Metal Heads with units using any other head materials. Otherwise, S/N ratio will become noticeably worse.
3. **Alignment of Upper Cylinder Unit**
   1) When installing, make sure that the hole on the Upper Cylinder is aligned with the indentation on the Lower Cylinder.
   2) After installing, perform the "Tape Interchangeability Adjustment" procedures.

Opener Piece, Pinch Arm Unit, Motor Block Ass'y, Audio Control Head Unit, and Cleaner Arm Unit

Disassembly Procedure

1. Remove the Opener Piece by pulling it upward while releasing 2 Locking Tabs (A).
2. Pull up on the Pinch Arm Unit.
3. Release 3 Locking Tabs (B) and remove Screw with Washer (C). Then, remove the Motor Block Ass'y and Audio Control Head Unit.
4. Remove the Cleaner Arm Unit by pulling it upward while releasing Locking Tab (K).


③ Opener Piece
Locking Tabs (A)
⑤ Motor Block Ass'y
④ Pinch Arm Unit
Locking Tab (K)
Locking Tabs (B)
Pin
㊵ Cleaner Arm Unit
Screw with Washer (C)
⑥ Audio Control Head Unit
Locking Tab (B)
Main Cam Gear
Groove

Note:
Depending on the VCR model, there may or may not be a Cleaner Arm Unit.
Please refer to "Exploded Views" or "Replacement Parts List."

Fig. J4

Reassembly Notes

1. **Installation of Audio Control Head Unit**
   1) Install the Audio Control Head Unit before Motor Block Ass'y.
   2) After installing, perform the "Tape Interchangeability Adjustment" procedures.
2. **Installation of Pinch Arm Unit**
   1) Install the Pinch Arm Unit so that the Pin of Pinch Arm Unit fits in the groove of Main Cam Gear.

Main Cam Gear and Drive Rack Arm

Disassembly Procedure

1. Remove the Main Cam Push Nut. (Refer to Note.)
2. Pull up on the Main Cam Gear.
3. Turn the Drive Rack Arm fully counterclockwise as shown.
4. Pull up on the Drive Rack Arm.

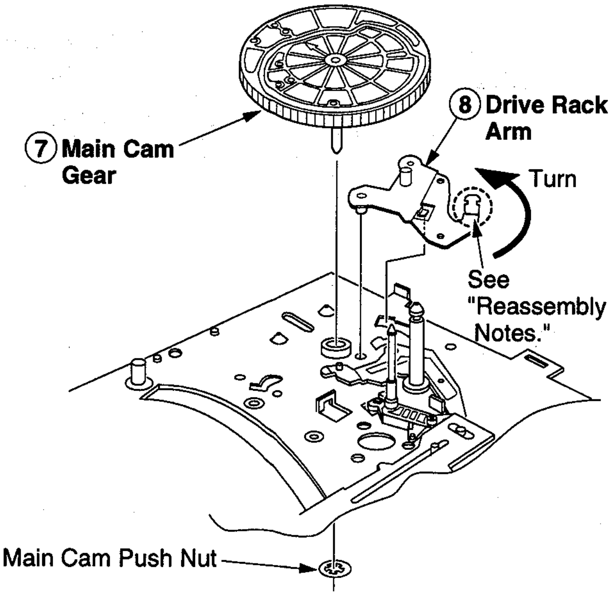

⑦ Main Cam Gear
⑧ Drive Rack Arm
Turn
See "Reassembly Notes."
Main Cam Push Nut

Fig. J5-1

Note:

When removing the Main Cam Push Nut, use a screwdriver etc.

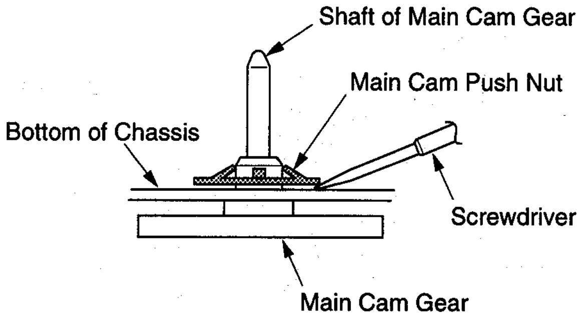

Shaft of Main Cam Gear
Main Cam Push Nut
Bottom of Chassis
Screwdriver
Main Cam Gear

Fig. J5-2

Reassembly Notes

1. **Alignment of Main Cam Gear, Drive Rack Arm, and Main Lever Drive Arm**
   1) Confirm that the hole (C) on the Main Lever Drive Arm is aligned with the hole on chassis (Through hole (C)) as shown.
   2) Install the Drive Rack Arm so that the hole (A) is aligned with the hole on chassis (Through hole (A)) as shown.
   3) Install the Main Cam Gear so that the 2 holes (B) marked "E" are aligned with the hole on chassis (Through hole (B)) as shown. ("E" indicates the EJECT position.)

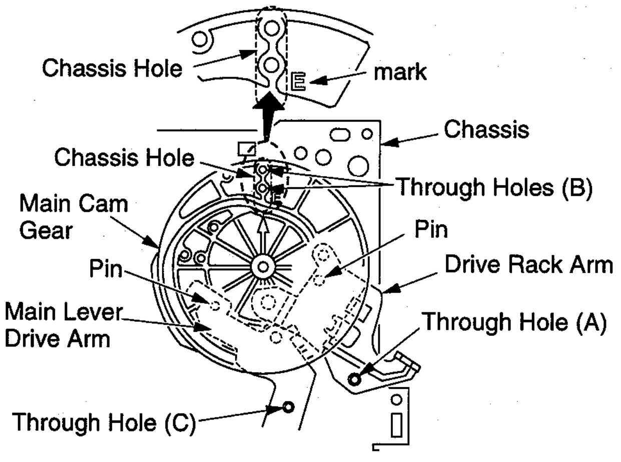

Chassis Hole
E
mark
Chassis
Chassis Hole
Through Holes (B)
Main Cam Gear
Pin
Pin
Drive Rack Arm
Main Lever Drive Arm
Through Hole (A)
Through Hole (C)

Fig. J5-3

2. **Holes on Main Cam Gear**
   1) The holes on Main Cam Gear should be aligned with the hole on chassis in each mode (Through hole) as shown.

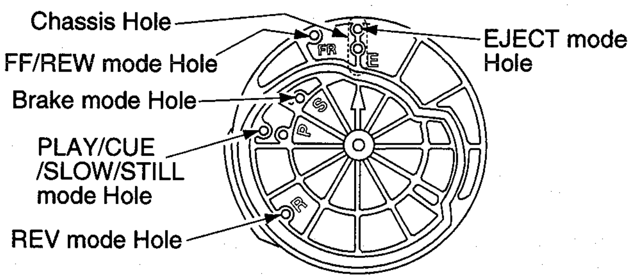

Chassis Hole
FF/REW mode Hole
Brake mode Hole
PLAY/CUE /SLOW/STILL mode Hole
REV mode Hole
EJECT mode Hole
FR
E
S
P
R

Fig. J5-4

3. **Installation of Main Cam Gear and Main Cam Push Nut**
   1) Position the chassis upside down and place a Support under the Main Cam Gear.
      Install the Main Cam Push Nut with Needlenose Pliers etc. so that it is flush with the chassis.

      There may be some slight scratches on the Shaft of Main Cam Gear, when removing the Main Cam Gear. In case that the Main Cam Gear can be installed securely without tottering, it is fine to use the one. If any tottering, replace a new one.

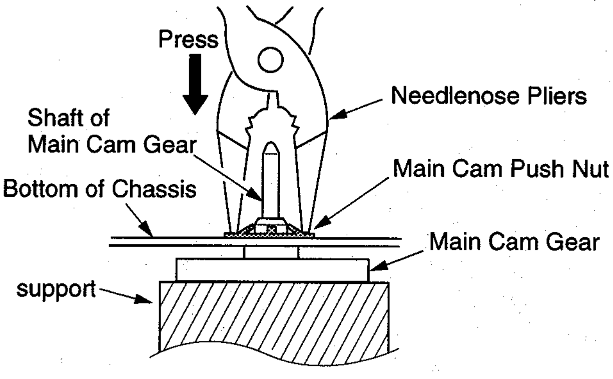

Press
Needlenose Pliers
Shaft of Main Cam Gear
Main Cam Push Nut
Bottom of Chassis
Main Cam Gear
support

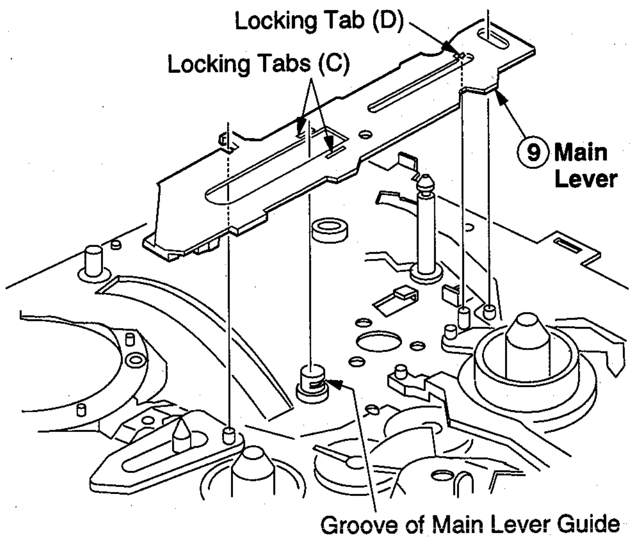
Fig. J5-5

4. The Main Cam Push Nut is not reusable. Install a new one.
5. Make sure to hook Spring (A) of the Cassette Up Ass'y to the Drive Rack Arm. Refer to "Cassette Up Ass'y" in "Disassembly/Assembly Procedures of Cabinet."

Main Lever

Disassembly Procedure

1. Release 2 Locking Tabs (C) and Locking Tab (D). Then, remove the Main Lever.

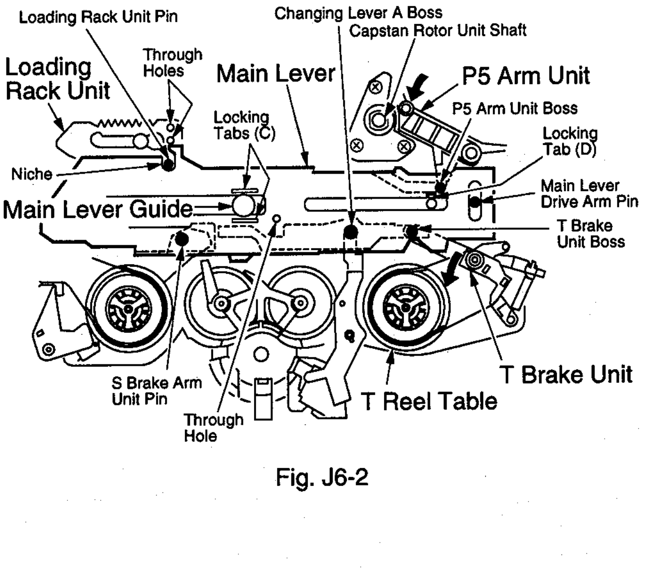


Locking Tab (D)
Locking Tabs (C)
⑨ Main Lever
Groove of Main Lever Guide

Fig. J6-1

Reassembly Notes

1. **Installation/Alignment of Main Lever**
   1) Make sure that the 2 holes of Loading Rack Unit are aligned with the holes on chassis (Through holes).
   2) Turn the P5 Arm Unit to the Capstan Rotor Unit Shaft side.
   3) Turn the T Brake Unit to the T Reel Table side.
   4) Position the Main Lever so that the Loading Rack Unit Pin fits in the niche of Main Lever. Confirm that pins and bosses are in the position and that the hole of Main Lever is aligned with the hole on chassis (Through hole) as shown. Then, install the Main Lever.
   5) Push down the Locking Tabs (C) to set in the groove of Main Lever Guide.



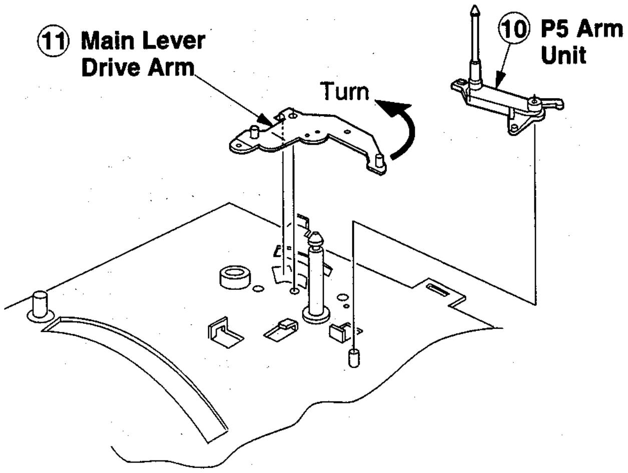
Loading Rack Unit Pin
Changing Lever A Boss
Capstan Rotor Unit Shaft
Through Holes
Loading Rack Unit
Main Lever
P5 Arm Unit
P5 Arm Unit Boss
Locking Tabs (C)
Locking Tab (D)
Niche
Main Lever Drive Arm Pin
Main Lever Guide
T Brake Unit Boss
S Brake Arm Unit Pin
Through Hole
T Brake Unit
T Reel Table

Fig. J6-2

P5 Arm Unit and Main Lever Drive Arm

Disassembly Procedure

1. Pull up on the P5 Arm Unit.
2. Turn the Main Lever Drive Arm fully counterclockwise as shown.
3. Pull up on the Main Lever Drive Arm.

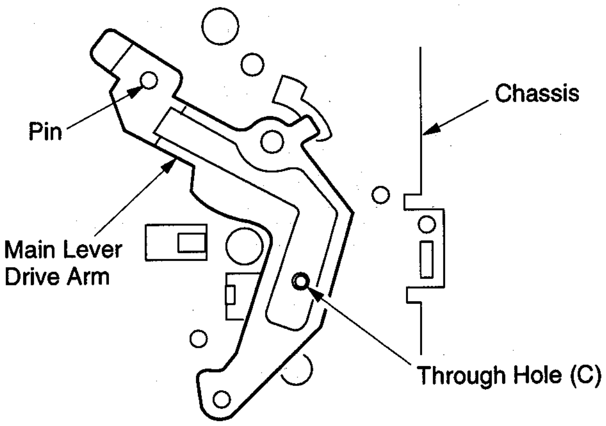


⑪ Main Lever Drive Arm
Turn
⑩ P5 Arm Unit

Fig. J7-1

Reassembly Notes

1. **Alignment of Main Lever Drive Arm**
   1) Install the Main Lever Drive Arm so that the hole (C) is aligned with the hole on the chassis Through hole (C)) as shown.



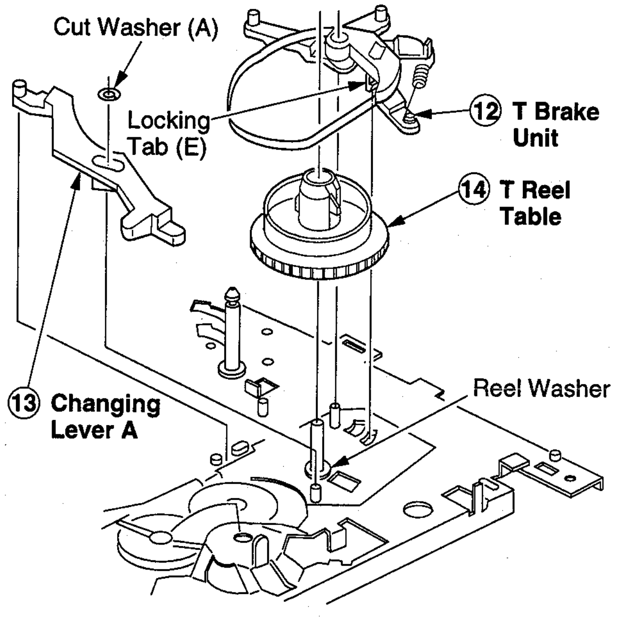
Chassis
Pin
Main Lever Drive Arm
Through Hole (C)

Fig. J7-2

T Brake Unit, Changing Lever A, and T Reel Table

Disassembly Procedure

1. Remove the T Brake Unit while releasing Locking Tab (E) located under the chassis.
2. Remove Cut Washer (A). Then, pull up on the Changing Lever A and remove.
3. Pull up on the T Reel Table.

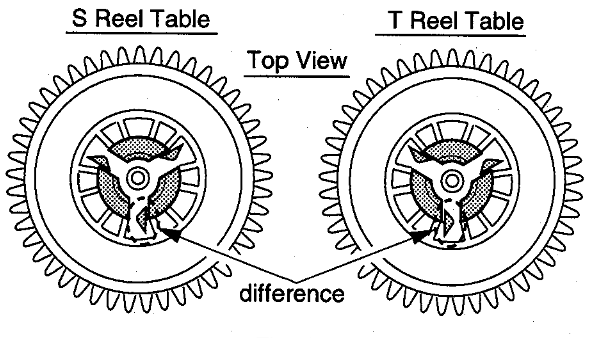


Cut Washer (A)
Locking Tab (E)
⑫ T Brake Unit
⑭ T Reel Table
Reel Washer
⑬ Changing Lever A

Fig. J8-1

Reassembly Notes

1. **How to distinguish between S Reel Table and T Reel Table**



S Reel Table
T Reel Table
Top View
difference

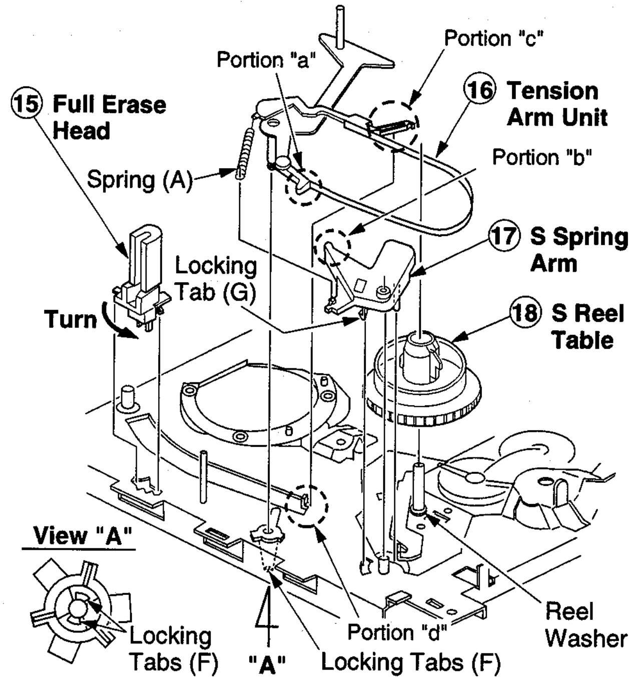
Fig. J8-2

2. **Adjustment of T Reel Table**
   1) After installing, perform the "Reel Table Height Adjustment" procedures.
3. Be careful not to lose the Reel Washer under the T Reel Table.
4. Cut Washer (A) is not reusable. Install a new one.

Full Erase Head, Tension Arm Unit, S Spring Arm, and S Reel Table

Disassembly Procedure

1. Turn the Full Erase Head fully counterclockwise as shown. Then remove it.
2. Unhook Spring (A).
3. Remove the Tension Arm Unit by pulling it up while releasing 2 Locking Tabs (F).
4. Remove the S Spring Arm while releasing Locking Tab (G).
5. Pull up on the S Reel Table.

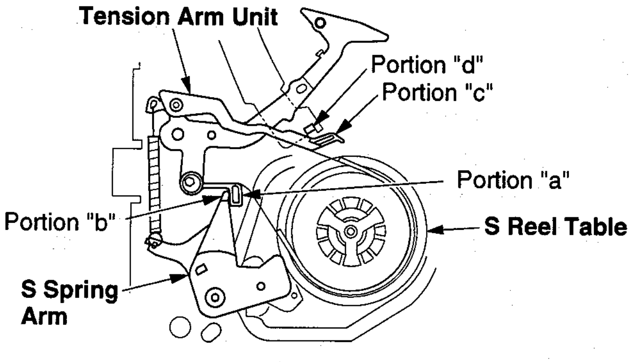


Portion "c"
Portion "a"
⑮ Full Erase Head
⑯ Tension Arm Unit
Portion "b"
Spring (A)
⑰ S Spring Arm
Locking Tab (G)
Turn
⑱ S Reel Table
View "A"
Locking Tabs (F)
"A"
Portion "d"
Locking Tabs (F)
Reel Washer

Fig. J9-1

Reassembly Notes

1. **Adjustment of S Reel Table**
   1) After installing, perform the "Reel Table Height Adjustment" procedures.
2. Be careful not to lose the Reel Washer under the S Reel Table.
3. **Confirmation/Adjustment of Tension Arm Unit**
   1) When installing Tension Arm Unit and S Spring Arm, confirm "a," "b," "c," and "d" portion are in the proper position as shown.



Tension Arm Unit
Portion "d"
Portion "c"
Portion "a"
Portion "b"
S Reel Table
S Spring Arm

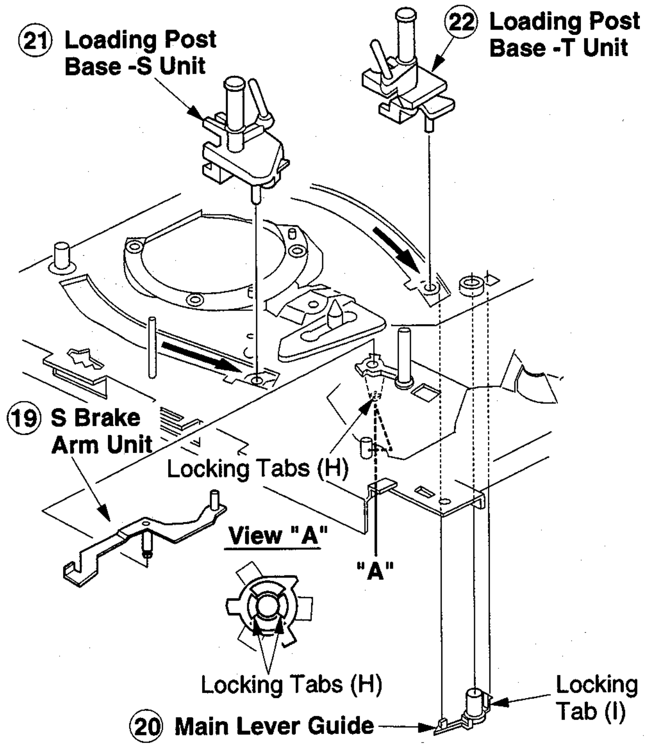
Fig. J9-2

   2) After installing, perform the "Tension Post Adjustment" procedures.

S Brake Arm Unit, Main Lever Guide, Loading Post Base -S, and Loading Post Base -T Unit

Disassembly Procedure

1. Remove the S Brake Arm Unit while releasing 2 Locking Tabs (H).
2. Remove the Main Lever Guide while releasing Locking Tab (I).
3. Slide the Loading Post Base -S and T Units to the end of the guide slots to remove.



(21) Loading Post Base -S Unit
(22) Loading Post Base -T Unit
(19) S Brake Arm Unit
Locking Tabs (H)
View "A"
"A"
Locking Tabs (H)
(20) Main Lever Guide
Locking Tab (I)

Fig. J10

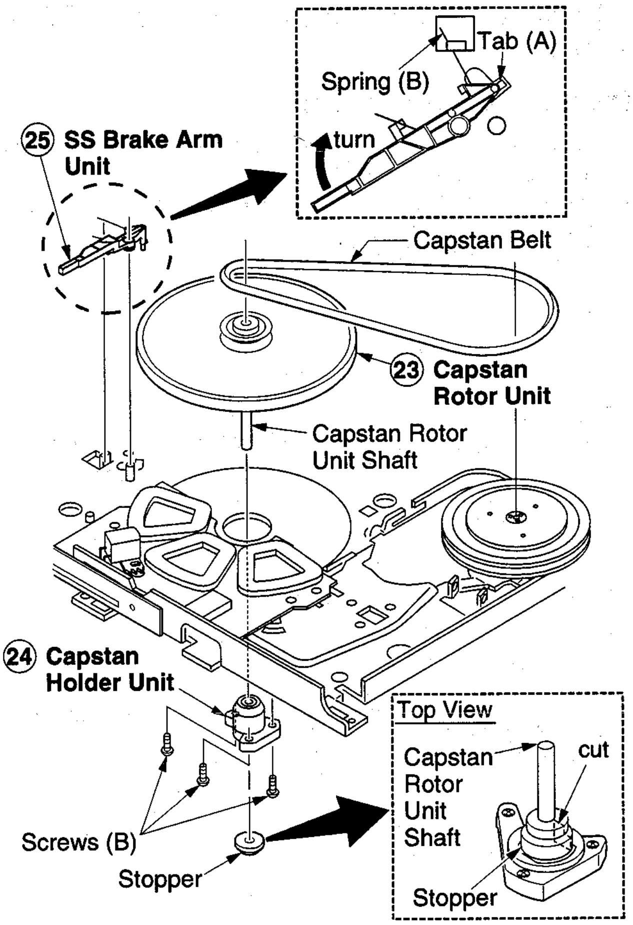
Reassembly Notes

1. **Adjustment of Loading Post Base -S Unit and Loading Post Base -T Unit**
   1) After installing, perform the "P2 and P3 Post Height Adjustment" procedures and "Tape Interchangeability Adjustment" procedures.

Capstan Rotor Unit, Capstan Holder Unit, and SS Brake Arm Unit

Disassembly Procedure

1. Remove the Capstan Belt.
2. Cut the Stopper with a cutter to remove.
3. Pull up on the Capstan Rotor Unit.
4. Remove 3 Screws (B). Then remove the Capstan Holder Unit.
5. Unhook Spring (B).
6. Turn the SS Brake Arm Unit so that the Tab (A) lines up with the niche. Then, remove the SS Brake Arm Unit.

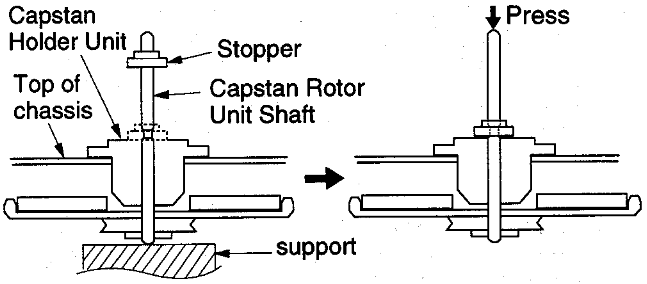


Tab (A)
Spring (B)
turn
(25) SS Brake Arm Unit
Capstan Belt
(23) Capstan Rotor Unit
Capstan Rotor Unit Shaft
(24) Capstan Holder Unit
Screws (B)
Stopper
Top View
Capstan Rotor Unit Shaft
cut
Stopper

Fig. J11-1

Reassembly Notes

1. **Installation of Capstan Rotor Unit**
   1) Insert the Capstan Rotor Unit Shaft into the hole of the Capstan Holder Unit.
   2) Place a support under the Capstan Rotor Unit shaft. Install the Stopper. Be careful not to scratch the shaft or Capstan Holder Unit.
   3) Remove the support. Press the top end of the shaft down so that the Stopper is properly positioned. You should be able to move the shaft up and down slightly when properly positioned.



Capstan Holder Unit
Stopper
Top of chassis
Capstan Rotor Unit Shaft
support
Press

Fig. J11-2

2. **Capstan Rotor Kit**
   Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as a Capstan Rotor Kit only. (Kit No. VXPS0382K) They are not reusable. Install all new parts.
   Because even invisible scratches on the Capstan Rotor Unit shaft and the Capstan Holder Unit, made when cutting the Stopper, could cause tape path instability.

Junction C.B.A., Capstan Stator Unit, Sub Rotor, and PCB Holder

Disassembly Procedure

1. Remove 2 Screws (C).
2. Unsolder P2532 on the Junction C.B.A. Then, remove the Junction C.B.A.
3. Remove Screw (D) and 2 Screws with Washers (D), (E). Then, remove Capstan Stator Unit, Sub Rotor, and PCB Holder.

CAUTION:

When removing Capstan Stator Unit, avoid touching IC2501 on the Capstan Stator Unit because it is **HOT** during operation.

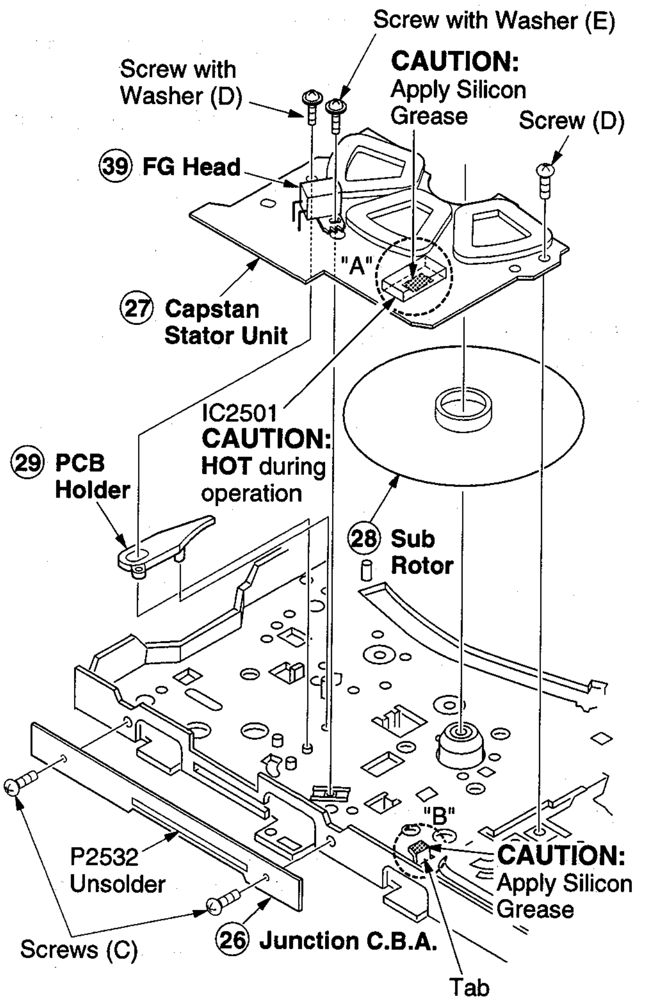

Screw with Washer (E)
Screw with Washer (D)
CAUTION: Apply Silicon Grease
Screw (D)
㊴ FG Head
"A"
㉗ Capstan Stator Unit
IC2501 CAUTION: HOT during operation
㉙ PCB Holder
㉘ Sub Rotor
"B"
CAUTION: Apply Silicon Grease
P2532 Unsolder
Screws (C)
㉖ Junction C.B.A.
Tab

Fig. J12-1

Reassembly Notes

1. **Application of Sillicon Grease**

CAUTION

When installing the IC2501 or Capstan Stator Unit, be sure to apply Silicon Grease (VFK1301) as shown. Be careful not to touch other parts with greased portion to prevent grease depletion.

Silicon Grease Application

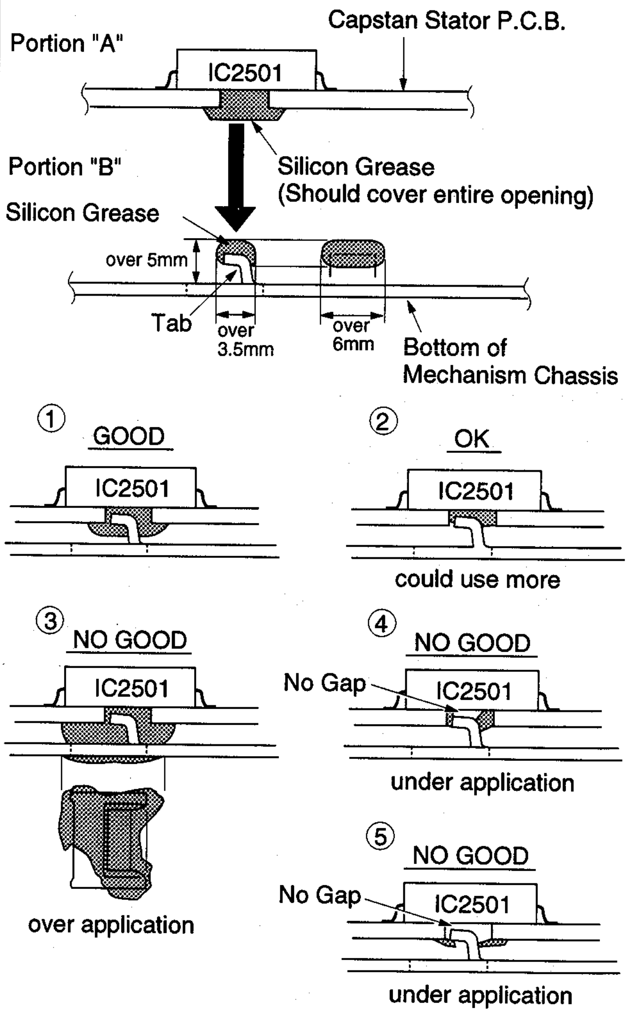

Capstan Stator P.C.B.
Portion "A"
IC2501
Portion "B"
Silicon Grease (Should cover entire opening)
Silicon Grease
over 5mm
Tab
over 3.5mm
over 6mm
Bottom of Mechanism Chassis
① GOOD
② OK
could use more
③ NO GOOD
over application
④ NO GOOD
No Gap
under application
⑤ NO GOOD
No Gap
under application

Fig. J12-2

2. **Capstan Stator Kit**
   1) Capstan Stator Unit, Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as a Capstan Stator Kit only (Kit No. VEMS0316K).
   However, IC2501(AN3845SC) is available separately as a replacement part.
   Capstan Rotor Unit, Capstan Holder Unit, and Stopper are not reusable. Install all new parts.
   Because even invisible scratches on the Capstan Rotor Unit shaft and the Capstan Holder Unit, made when cutting the Stopper, could cause tape path instability.
3. **Adjustment of FG Head**
   1) After installing, perform the "FG Head gap Adjustment" procedures.

T Loading Arm Unit and S Loading Arm Unit

Disassembly Procedure

1. Remove the T Loading Arm Unit by pulling it up while releasing Locking Tab (J).
2. Pull up on the S Loading Arm Unit.

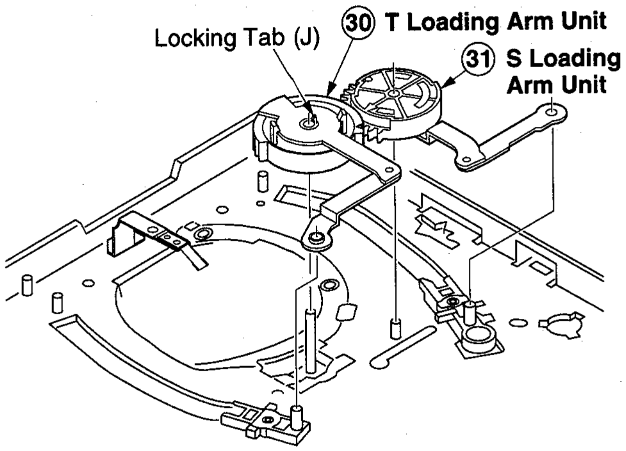

Locking Tab (J)
㉚ T Loading Arm Unit
㉛ S Loading Arm Unit

Fig. J13-1

Reassembly Notes

1. **Alignment of Loading Rack Unit, T Loading Arm Unit, and S Loading Arm Unit**
   1) Slide the Loading Rack Unit so that the holes on it and the holes on the chassis line up properly.
   2) Install the S Loading Arm Unit onto the Chassis.
   3) Install the T Loading Arm Unit so that the triangle-shaped indent is aligned with the arrow on the S Loading Arm Unit as shown. Confirm that each hole on the T Loading Arm Unit, Chassis, and Loading Rack Unit are through holes.

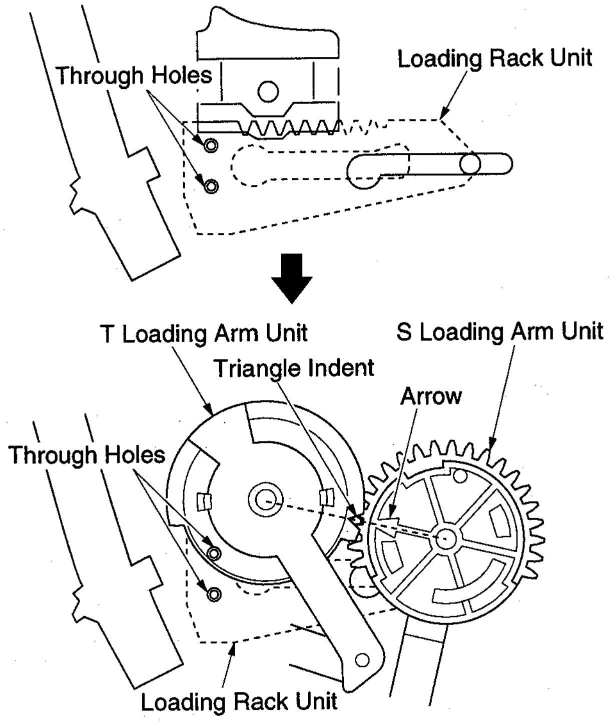

Through Holes
Loading Rack Unit
T Loading Arm Unit
S Loading Arm Unit
Triangle Indent
Arrow
Through Holes
Loading Rack Unit

Fig. J13-2

Center Clutch Unit, Changing Gear Spring, Changing Gear, Changing Lever-B, and Idler Arm Unit

Disassembly Procedure

1. Remove Cut Washer (B). Then remove the Center Clutch Unit, Changing Gear Spring, and Changing Gear.
2. Remove Changing Lever -B so that the 2 Mounting Holes clear Mounting Pins.
3. Pull up on the Idler Arm Unit.

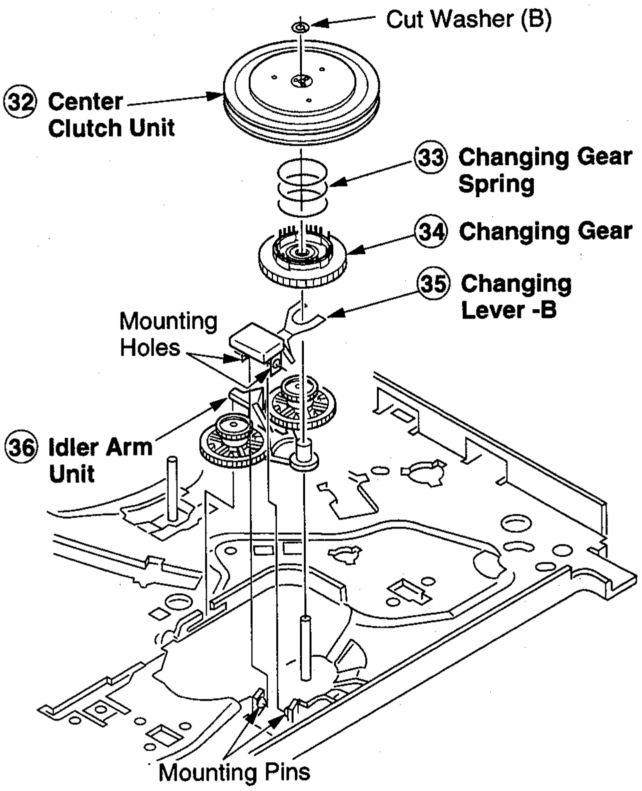

Cut Washer (B)
㉜ Center Clutch Unit
㉝ Changing Gear Spring
㉞ Changing Gear
㉟ Changing Lever -B
Mounting Holes
㊱ Idler Arm Unit
Mounting Pins

FIg. J14-1

Reassembly Notes

1. **Installation of Center Clutch Unit**
   1) Fit the Center Clutch Unit into the Changing Gear as shown.

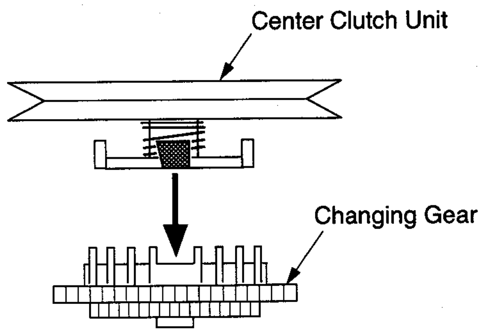

Center Clutch Unit
Changing Gear

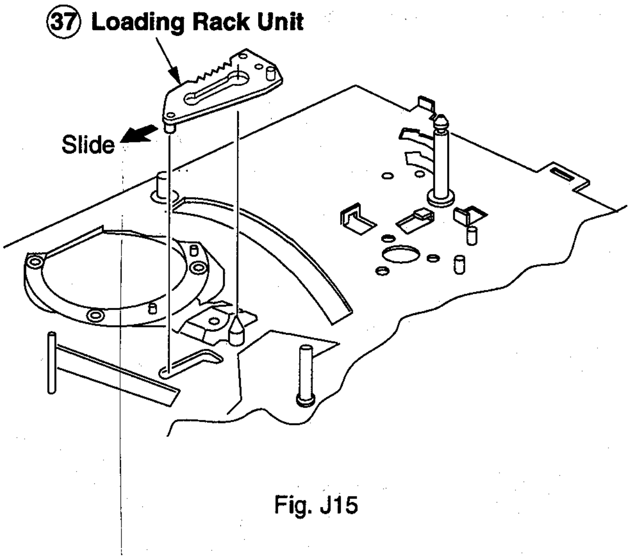
Fig. J14-2

2. Cut Washer (B) is not reusable. Install a new one.

Loading Rack Unit

Disassembly Procedure

1. Slide the Loading Rack Unit as indicated by the arrow. Then, pull up on the Loading Rack Unit.



㊲ Loading Rack Unit
Slide

Fig. J15

Reassembly Notes

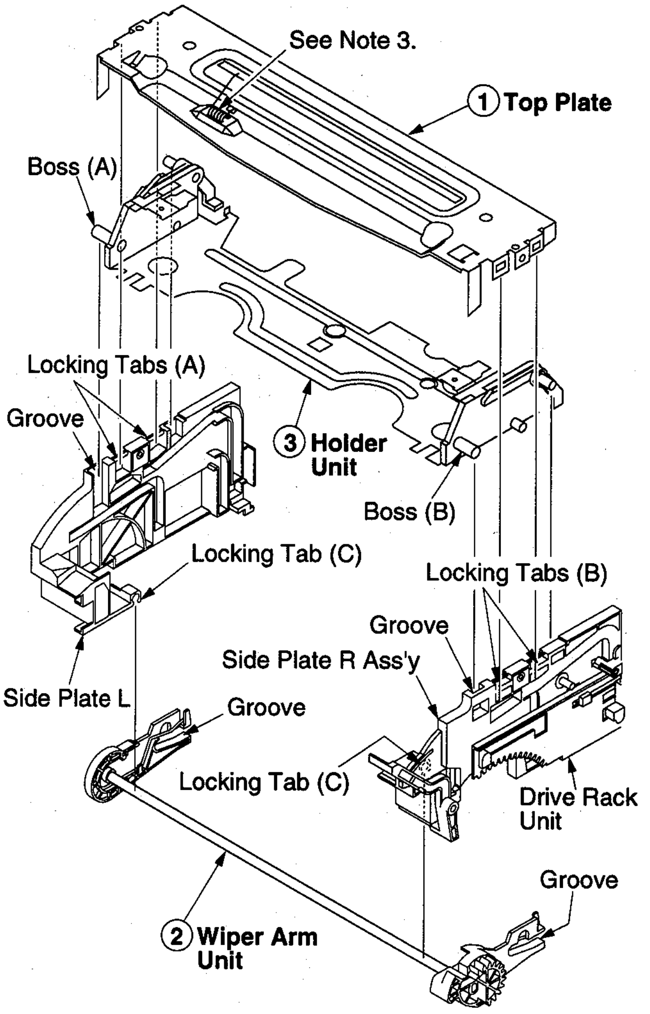
1. **Alignment of Loading Rack Unit**
   1) When installing Loading Rack Unit, refer to Reassembly Notes of "T Loading Arm Unit and S Loading Arm Unit."

DISASSEMBLY/ASSEMBLY PROCEDURES OF CASSETTE UP ASS'Y

Top Plate, Wiper Arm Unit, and Holder Unit

Disassembly Procedure

1. Remove Top Plate by releasing 2 Locking Tabs (A) on the left side and 2 Locking Tabs (B) on the right side of the Top Plate.
2. Remove Wiper Arm Unit by releasing 2 Locking Tabs (C). Then, remove the Holder Unit.

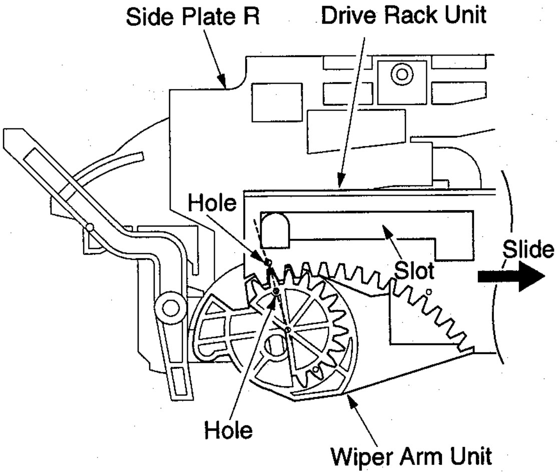


See Note 3.
① Top Plate
Boss (A)
Locking Tabs (A)
Groove
③ Holder Unit
Boss (B)
Locking Tab (C)
Locking Tabs (B)
Groove
Side Plate R Ass'y
Side Plate L
Groove
Locking Tab (C)
Drive Rack Unit
Groove
② Wiper Arm Unit

Fig. K1-1

Reassembly Notes

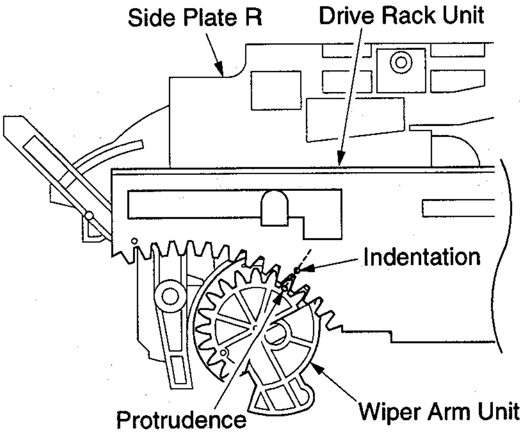
1. **Alignment of Wiper Arm Unit and Drive Rack Unit**
   1) Slide the Drive Rack Unit to the far right as indicated by the arrow.
   2) Install the Wiper Arm Unit so that the hole on the Wiper Arm Unit is aligned with the hole on the Drive Rack Unit.



Side Plate R
Drive Rack Unit
Hole
Slot
Slide
Hole
Wiper Arm Unit

Fig. K1-2

2. **Installation of Holder Unit**
   1) Turn the Wiper Arm Unit so that the grooves on each end are aligned with the each groove on Side Plate L and R.
   2) Insert Holder Unit boss (A) and (B) into the grooves.
   3) Finally, in the EJECT Position, confirm that the protrudence on the Wiper Arm Unit is aligned with the indentation on the Drive Rack Unit.



Side Plate R
Drive Rack Unit
Indentation
Protrudence
Wiper Arm Unit

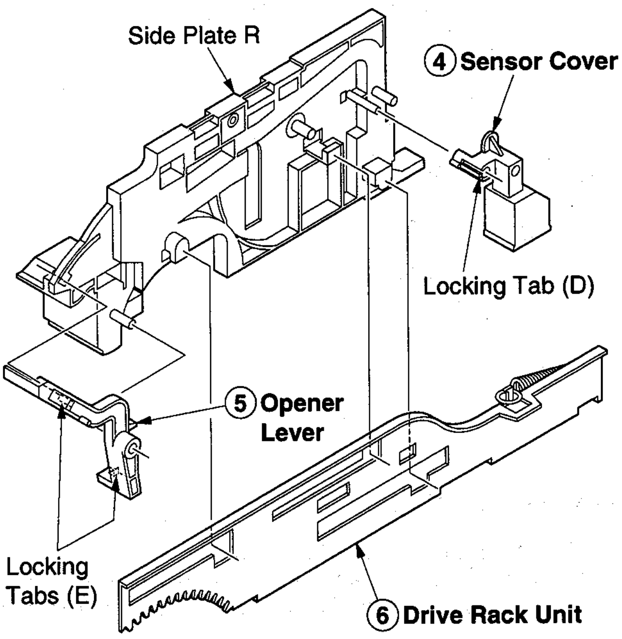
Fig. K1-3

3. As an ESD countermeasure, make sure the spring is in contact with Top Cover.

Sensor Cover, Opener Lever, and Drive Rack Unit

Disassembly Procedure

1. Remove the Sensor Cover by releasing Locking Tab (D).
2. Remove the Opener Lever by releasing 2 Locking Tabs (E). Then remove the Drive Rack Unit.

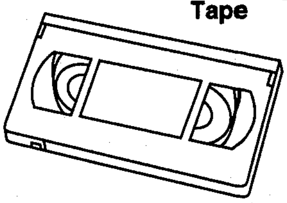
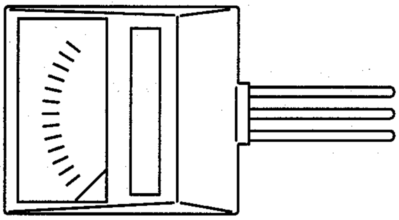
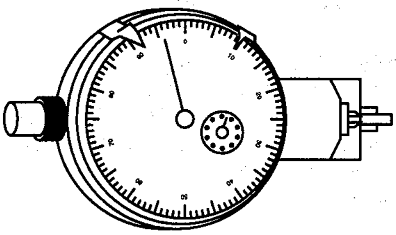
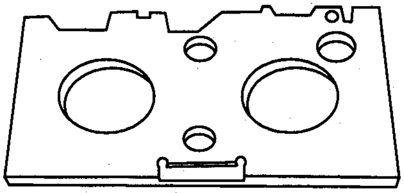
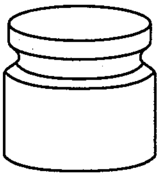
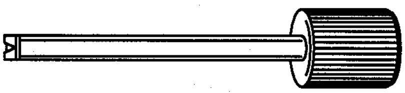
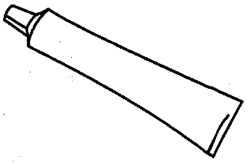
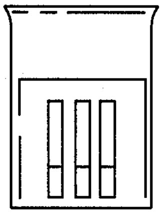
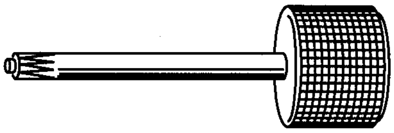


Side Plate R
④ Sensor Cover
Locking Tab (D)
⑤ Opener Lever
Locking Tabs (E)
⑥ Drive Rack Unit

Fig. K2

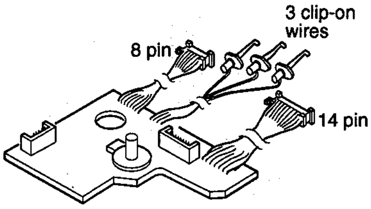
ADJUSTMENT PROCEDURES

SERVICE FIXTURES AND TOOLS

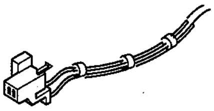
VFMS0003H6 **VHS Alignment Tape**  Video: Color Bar & Monoscope Audio: 6kHz(MONO)	**Back Tension Meter (Made in USA., Purchase Locally)** 	**VFKS0009** **Reel Table Height Fixture** 
VFKS0010 **Post Adjustment Plate** 	**VFKS0081** **Grease** 	**VFK0329** **Post Adjustment Driver** 
VFK1301 **Silicon Grease** 	**VFK27** **Head Cleaning Stick** 	**VFK0330** **H-Position Adjustment Driver** 

VUZS0002 **Extension Cable Kit**

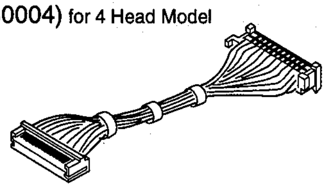
Mode Select Ass'y (VUVS0001)



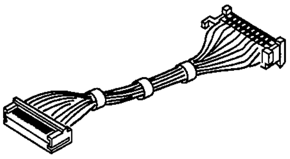
Extension Cable -1 (VUVS0002)



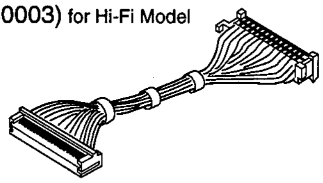
Extension Cable -2 (VUVS0004) for 4 Head Model



Extension Cable -2 (VUVS0005) for 2 Head Model



Extension Cable -2 (VUVS0003) for Hi-Fi Model



MECHANICAL ADJUSTMENT

CLEANING PROCEDURE FOR THE UPPER CYLINDER UNIT

1. While slowly turning the Upper Cylinder Unit counterclockwise by hand, gently rub the Video Heads with a Head Cleaning Stick (VFK27) moistened with Ethanol. When using a Cleaning Cassette, make sure to use "DRY" type only and be aware that excessive use can shorten head life.

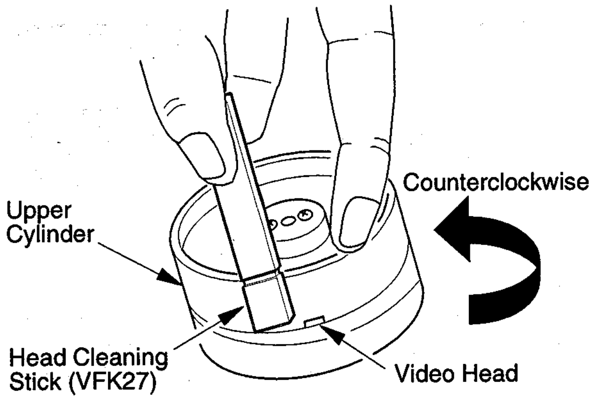


Fig. M1

Note:
1) Do not rub vertically or apply excess pressure to the Video Heads.
   Do not turn the Upper Cylinder Unit clockwise while cleaning.
2) After cleaning, use a Dry Head Cleaning Stick (VFK27) to remove any Ethanol remaining on the cylinder tape path. Otherwise, tape damage will occur.

ADJUSTMENT PROCEDURES

TENSION POST ADJUSTMENT

Purpose:
To maintain a constant tape tension so that the tape runs with stability by performing preliminary adjustment.

Symptom of Misadjustment:
1) If the adjusted value is below the specification, the tape tension is not sufficient, thus causing a tape slack.
2) If the adjusted value is above the specification, the tape tension is too high, thus causing tape damage.

Equipment Required:
2 mm Hex. Wrench .... (Purchase Locally)

1. Remove the Cassette Up Ass'y.
2. Plug the AC plug into an AC outlet.
3. Place the unit in the Service Mode. Refer to "Service Mode" in the "Service Notes" section of this manual.
   The power comes on and the unit goes into the PLAY Mode.
4. Using a (2 mm) Hex. Wrench, adjust the nut on the Tension Adjust Piece (counterclockwise only) so that there is a space of 1 mm between the left edge of the P1 Post and the right edge of the Tension Post. Make sure that the center of the Hex. Wrench hole is within Area "A".
5. After adjustment, remove the Hex. Wrench.
6. Press the STOP/EJECT button to place the unit in the EJECT Mode.
7. Release the unit from the Service Mode. Refer to "Service Mode" in the "Service Notes" section of this manual.

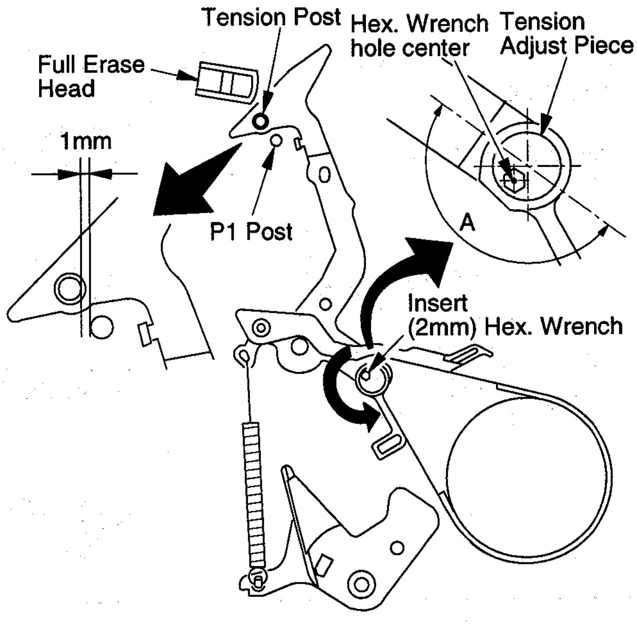


Fig. M2

BACK TENSION CONFIRMATION

Purpose:
To fine adjust the Back Tension so that the tape runs smoothly with a constant tension.

Symptom of Misadjustment:

1) If the tape tension is less than the specified value, the tape cannot come into proper contact with the Video Heads, resulting in poor picture playback.
2) If the tape tension is too high, the tape will soon be damaged.

Measurement Procedure

Equipment Required:
Back Tension Meter (Made in U.S.A., Purchase Locally)
VHS Cassette Tape (120-Minute Tape)

Specification .... 25 +/- 2.5g

1. Play back a T120 cassette tape from the beginning for approx. 10 to 20 seconds to stabilize tape movement.
2. Insert a Tension Meter into tape path and measure the back tension.
3. If the reading is out of specification, make sure that there is no dust or foreign material between the Tension Band of Tension Arm Unit and the Reel Table.
   If cleaning does not correct the tension measurement, replace the Tension Spring and the Tension Arm Unit.

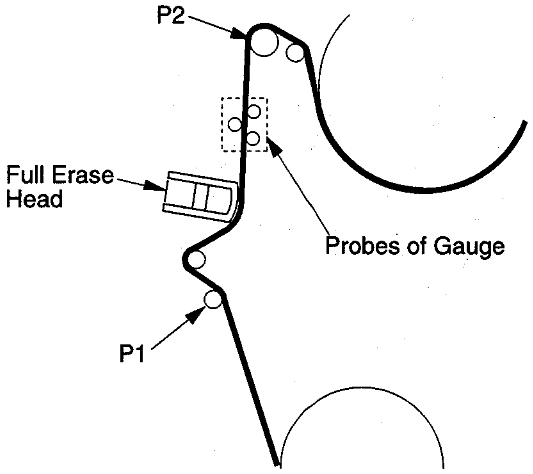


Fig. M3-1

Note:

1) Be sure that the three probes of the meter are all in solid contact with the tape, but not touching any other parts of the mechanism.
2) It is recommended that measurements be repeated at least three (3) times because the tension meter is very sensitive to external vibrations.

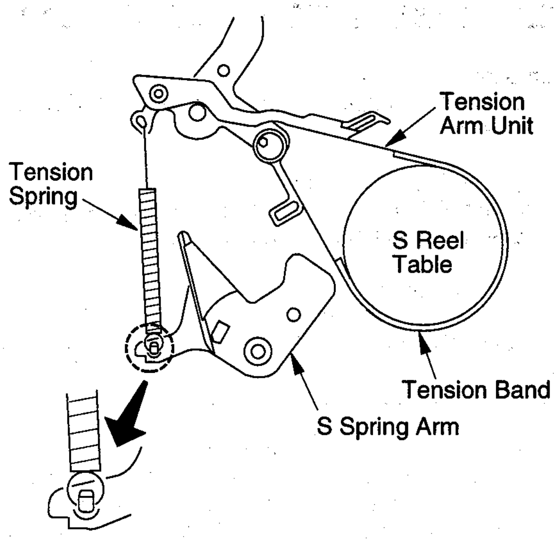


Fig. M3-2

REEL TABLE HEIGHT ADJUSTMENT

Purpose:
To align the height of Supply and Take-Up Reel Tables properly.

Symptom of Misadjustment:
If the height of the Reel Table is not properly aligned, the tape will eventually be damaged.

Equipment Required:
Post Adjustment Plate .... (VFKS0010)
Reel Table Height Fixture....................... (VFKS0009)

Specification .... 0 +/- 0.2mm

1. Remove the Cassette Up Ass'y.
2. Position the Post Adjustment Plate over the reels.
3. Place the reel table height fixture on the Post Adjustment Plate so that the foot of the fixture sits in the cutout portion of the Post Adjustment Plate. Then zero the fixture.

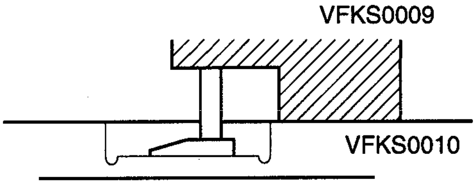


Fig. M4-1

4. Measure to the top edge of each reel table. The height should be 0 +/- 0.2 mm. If the height is not within the specification, add or remove Reel Washers (under the reel table) as necessary.

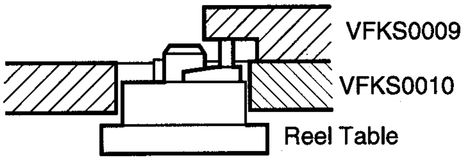


Fig. M4-2

Note:
Reel Washers are available in one size (0.25 mm) only.

FG HEAD GAP ADJUSTMENT

Purpose:
To properly pick up the FG Signal.

Symptom of Misadjustment:
If the FG Signal is not properly picked up, Servo Operation cannot be achieved.

Equipment Required:
Oscilloscope

Specification .... 0.13 +/- 0.02mm

1. Remove the VCR Chassis Unit and then place it upside down.
2. Remove the Main C.B.A.
3. Slightly loosen Black Screw (A). Then set the Screwdriver (#1 or #2 Phillips Driver) into the Hole (A). Turn the screwdriver counterclockwise until the FG Head touches the rotor. Then turn it slightly clockwise to the clearance as specified.
4. Tighten Black Screw (A).
5. Reinstall the Main C.B.A.

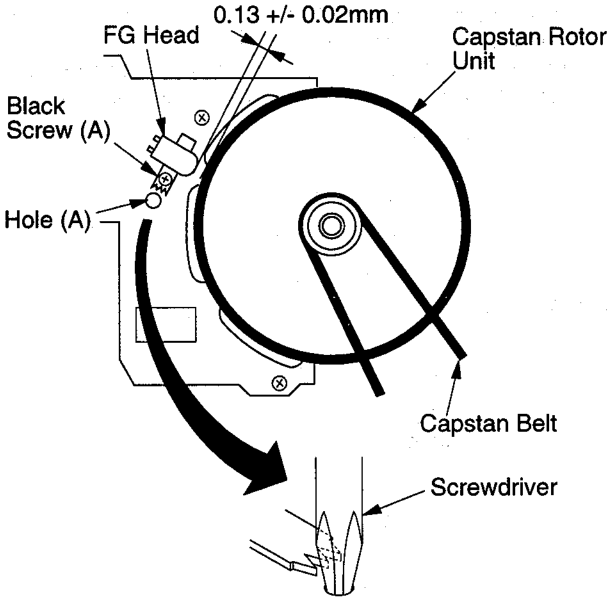


Fig. M5

Note:
Do not touch the outside circumference of the rotor surface with any tool and keep magnetic material away from the rotor magnet (especially metal particles).

Confirmation of Signal Level
1) Supply a Video Signal to the Video Input Jack.
2) Insert a cassette tape and place the unit in SLP recording mode.
3) Connect the oscilloscope to Pin 7 of P2502 on the Capstan Stator Unit.
Confirm that the signal level is greater than 10mVp-p.

P2 AND P3 POST HEIGHT ADJUSTMENT (PRELIMINARY ADJUSTMENT)

Purpose:

To properly align the position of the tape with the Cylinder Lead so that the tape runs with stability.

Symptom of Misadjustment:

1) Since the Envelope Waveform Signal cannot be tracked properly, the Playback picture will be poor.
2) Since the tape does not run smoothly, the tape will eventually be damaged.
3) Tape interchangeability is poor.

Equipment Required:

Post Adjustment Plate .... (VFKS0010)
Reel Table Height Fixture .... (VFKS0009)
Post Adjustment Driver .... (VFK0329)

1. Remove the Cassette Up Ass'y.
2. Position the Post Adjustment Plate over the reels.
3. Place the fixture on the Post Adjustment Plate and zero the fixture (DO NOT use the cut-out portion of the post adjustment plate.)

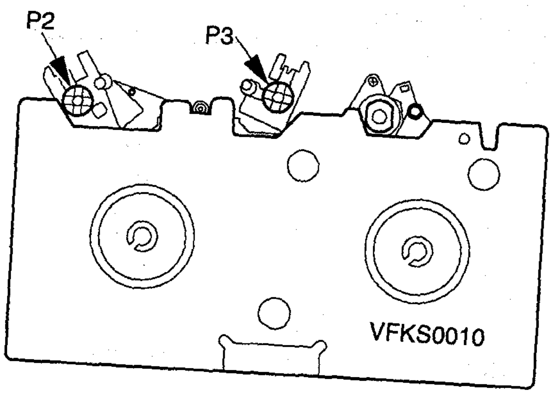

P2
P3
VFKS0010

Fig. M6-1

4. Lower each post below the top edge of the Post Adjustment Plate. Then, raise each post until it contacts the foot of the Reel Table Height Fixture. For proper adjustment, the foot of that should be positioned as shown.

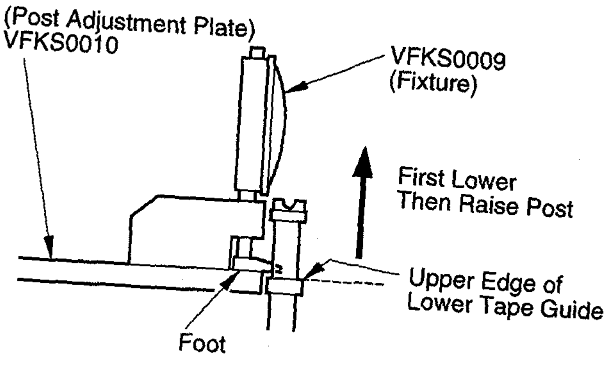

(Post Adjustment Plate)
VFKS0010
VFKS0009
(Fixture)
First Lower
Then Raise Post
Upper Edge of
Lower Tape Guide
Foot

Fig. M6-2

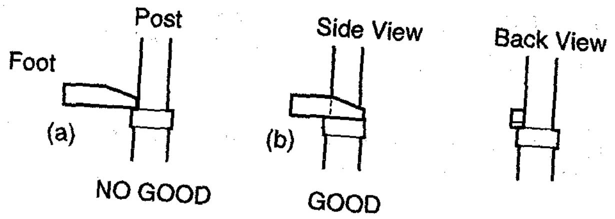

Post
Foot
(a)
Side View
(b)
Back View
NO GOOD
GOOD

Fig. M6-3

CAUTION:

1) Overtightening P2 and P3 posts may cause the threads to strip.
2) Upon completion of this procedure, perform the "Envelope Output Adjustment" procedures.

TAPE INTERCHANGEABILITY ADJUSTMENT (FINAL ADJUSTMENT)

Note:
To perform these adjustment/confirmation procedures, set the tracking to the neutral position.

Equipment Required:

Dual Trace Oscilloscope	
VHS Alignment Tape	(VFMS0003H6)
Post Adjustment Driver	(VFK0329)
H-Position Adjustment Driver	(VFK0330)

1. ENVELOPE OUTPUT ADJUSTMENT

Purpose:
To achieve a satisfactory picture and secure precise tracking.

Symptom of Misadjustment:
If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.

Equipment Required:

Post Adjustment Driver	(VFK0329)

1. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.
2. Place a jumper between TP6003 on the Video Signal Process Section and +5V(TP6009) on the System Control Section of the Main C.B.A. to defeat Auto Tracking.
3. Eject the tape and insert it again to access the Neutral Tracking position.
4. Play back the alignment tape and confirm that the RF envelope appears.
5. With Post Adjust Driver, adjust P2 and P3 post height so that the envelope waveform (V_1/V-max. is 0.7 or more.) becomes as flat as possible (No envelope drop). If the envelope drop appears on the left-half of the waveform, adjust P2 post height. If the envelope drop appears on the right-half of the waveform, adjust P3 post height.

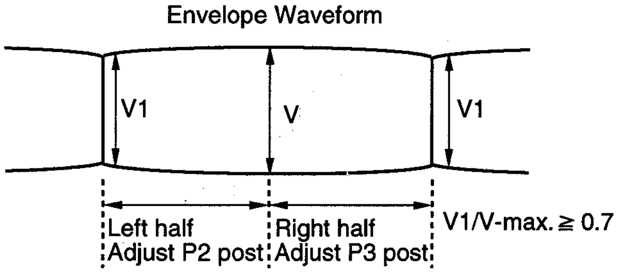


Fig. M7-1

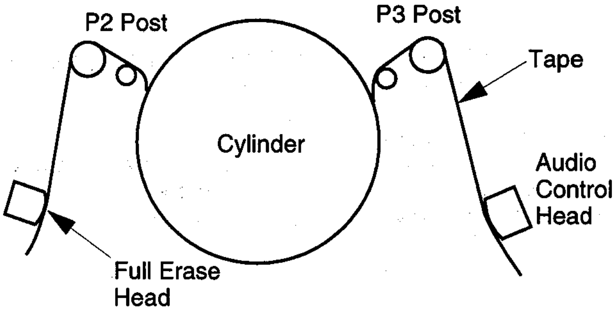


Fig. M7-2

Note:
To confirm adjustment, press the Tracking Control Up or Down button on remote control. Make sure that the envelope waveform remains flat. If not, readjust P2 and/or P3 post heights.

6. After adjustment, confirm that the tape travels without curling at P2 and P3 posts.
7. Remove the jumper after completing the adjustment procedure.

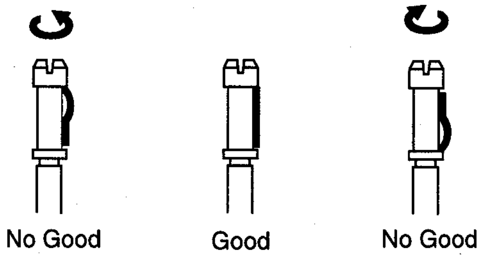


Fig. M7-3

Note:
Overtightening P2 and P3 posts may cause the threads to strip.

2. AUDIO CONTROL HEAD TILT ADJUSTMENT

Purpose:
To confirm that the tape runs smoothly. In particular, confirm that the tape properly picks up the Audio Signal at the upper part of the head and the Control Signal at the lower part of the head.

Symptom of Misadjustment:
If the tilt of the Audio Control Head is poorly adjusted, the tape will eventually be damaged. An intermittent Blue screen may be seen in Playback.

1. Play back a T120 cassette tape and check that the tape travels smoothly between the upper and lower guides of the P4 post.
2. If necessary, adjust Black Screw (B) clockwise until the tape begins to curl at the lower edge of the P4 post. Then adjust the screw counterclockwise until the curling is eliminated.

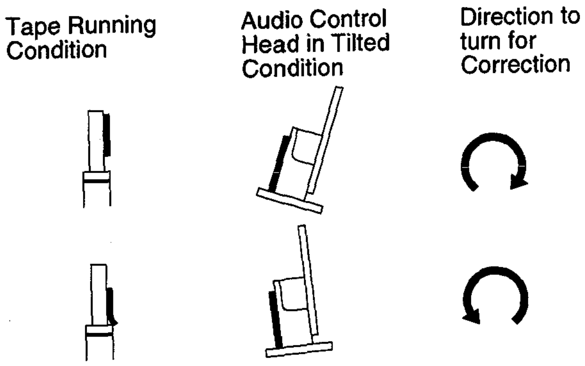

Tape Running Condition
Audio Control Head in Tilted Condition
Direction to turn for Correction

Fig. M8

3. AUDIO CONTROL HEAD HEIGHT ADJUSTMENT

The height of the Audio Control Head replacement part is preset at the factory.

Purpose:
To be sure the tape runs properly along the Control Head.

Symptom of Misadjustment:
If the control signal is not properly picked up, Servo Operation cannot be achieved. A Blue screen will be seen in Playback.

This confirmation is required when the Audio Control Head is replaced.

1. Play back a T120 cassette tape and check that the lower edge of the tape runs approximately 0.25 mm above the lower edge of the Audio Control Head.
2. If necessary, adjust Black Screws (A) and (B) clockwise to lower the tape or counterclockwise to raise.

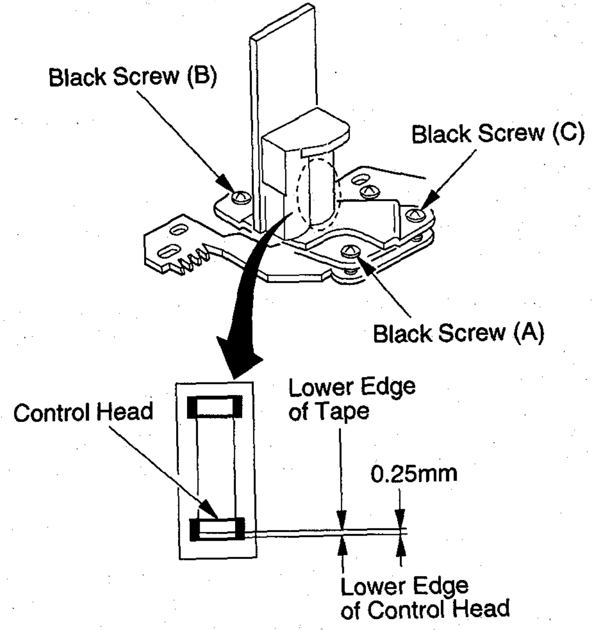


Fig. M9

4. AUDIO CONTROL HEAD AZIMUTH ADJUSTMENT

Purpose:
To adjust the position and height of the Audio Control Head so that it meets the tape tracks properly.

Symptom of Misadjustment:
If the position of the Audio Control Head is not properly adjusted, the Audio S/N Ratio is poor.

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Play back the 6kHz Monaural Audio portion of the alignment tape.
3. Adjust Black Screw (C) on the Audio Control Head base so that the output level is at maximum.

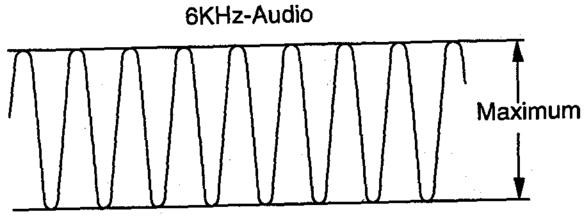


Fig. M10

4. Confirm the height of the Audio Control Head is proper. If not, readjust Black Screws (A) and (B).

5. AUDIO CONTROL HEAD HORIZONTAL POSITION ADJUSTMENT

Purpose:
To adjust the Horizontal Position of the Audio Control Head.

Symptom of Misadjustment:
If the Horizontal Position of the Audio Control Head is not properly adjusted, a maximum envelope cannot be obtained at the Neutral Position of the Tracking Control Circuit.

1. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.
2. Place a jumper between TP6003 on the Video Signal Process Section and +5V(TP6009) on the System Control Section of the Main C.B.A. to defeat Auto Tracking.
3. Eject the tape and insert it again to access the Neutral Tracking position.
4. Play back the alignment tape and confirm that the RF envelope appears.
5. If adjustment is required, loosen the Black Screw (D) and tighten it lightly. Set the H-Position Adjustment Driver into the Hole (A). Then slowly turn the fixture either clockwise or counterclockwise so that the envelope is at maximum.
6. Before finding the center of the maximum period of the envelope, rotate the fixture back and forth slightly to confirm the limits on either side of the maximum period.
7. Push the Tracking Control Up Button (on the Remote Control) several times (count the number of times pushed) until the maximum envelope is reduced to 1/2.
8. Reset the tracking to the neutral position by ejecting the tape and reinserting it. Push the Tracking Control Down Button (on the Remote Control) several times (count the number of times pushed) until the maximum envelope is reduced to 1/2.
9. If the number of pushing is not the same, then loosen the Black Screw (D) and set the H-Position Adjustment Driver into the Hole (A) to find the center point. Then repeat the above procedure to determine the center point.
10. Tighten Black Screw (D).
(The Black Screw (D) should be in the approximate center of the hole.)
11. Remove the jumper between TP6003 and +5V(TP6009).

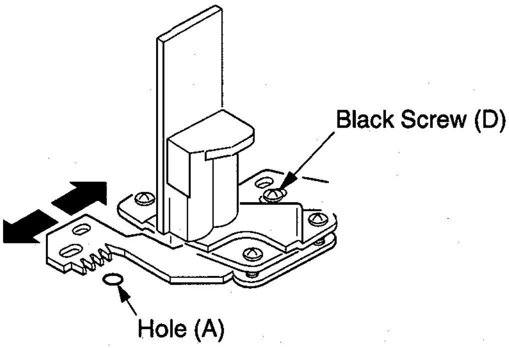


Fig. M11

Note:
Old type of H-Position Adjustment Driver (VFK0136) can be used for this adjustment.

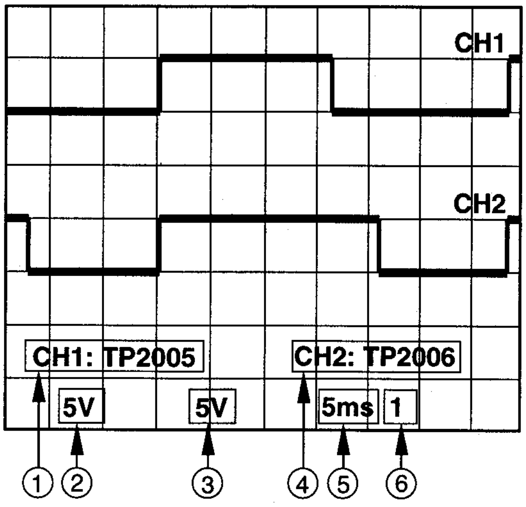
ELECTRICAL ADJUSTMENT

TEST EQUIPMENT

To do all of these electrical adjustments, the following equipment is required.

1. Dual-Trace Oscilloscope
   Voltage Range : 0.001 to 50V/Div.
   Frequency Range : DC to 50MHz
   Probes : 10:1, 1:1
2. NTSC Video Pattern Generator
3. Color TV Receiver or Monitor
4. Plastic Tip Driver and Non-Metal Driver
5. Isolation Transformer (Variable)
6. VHS Alignment Tape (VFMS0003H6)
7. Blank Tape
8. AC Millivolt Meter
   Voltage Range : 0 to 1Vrms.
9. MTS/SAP Signal Generator
   (TV Multi-Channel Sound Modulator (U.S.A.))

HOW TO READ THE ADJUSTMENT PROCEDURES



1. Connecting Point
2. Volts/DIV
3. Volts/DIV
4. Connecting Point
5. Time/DIV
6. Trigger Channel of the Scope
1 : CH1
2 : CH2

Fig. E1

PG SHIFTER ADJUSTMENT

Purpose:
Determine the Video Head Switching Point during Playback.

Symptom of Misadjustment:
May cause Head Switching Noise and/or Vertical Jitter.

Test Point : TP3001 (Main C.B.A.)
TP6205 (Main C.B.A.)
Adjustment : R6201 (Main C.B.A.)
Specification : T = 6 +/- 1H (0.38 +/- 0.06msec.)
Mode : SP Playback
Equipment : Oscilloscope
VHS Alignment Tape (VFMS0003H6)

1. Connect the channel-1 scope probe to TP3001 and the channel-2 scope probe to TP6205. Trigger from channel-2.
2. Playback the VHS alignment tape and adjust the R6201 (PG SHIFTER) so that the leading edge of the head switching pulse is placed 6H +/- 1H (0.38 +/- 0.06msec.) before the start of the vertical sync pulse.

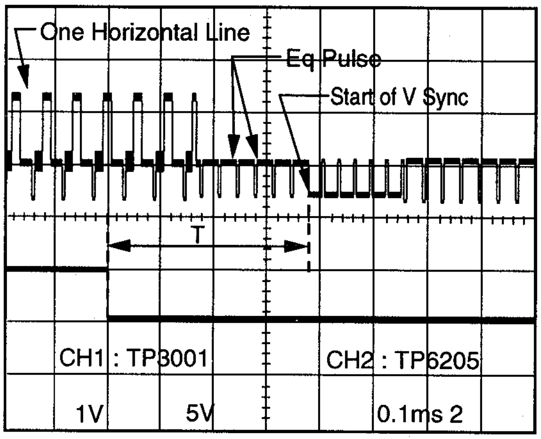


Fig. E2

INPUT LEVEL ADJUSTMENT (Model : D, E, F)

Purpose:
To fix the output level of Tuner.

Symptom of Misadjustment:
The L and R channels of the STEREO signal will not be separated properly.
The L channel will contain part of the R channel signal or vice versa.

Test Point : Pin 4 of U4901 (Main C.B.A.)
Adjustment : R7007 (Main C.B.A.)
Specification : 245 +/- 8mVrms (693 +/- 23mVp-p)
Input : Antenna Input Terminal
MONO 300Hz +/- 5Hz 100% Modulating
Mode : STOP
Equipment : AC Millivolt Meter,
MTS/SAP Signal Generator

1. Connect the AC Millivolt Meter to pin 4 of U4901.
2. Connect the MTS/SAP Signal Generator to the RF Input on the VCR. Set the MTS/SAP Signal Generator as follows.
   MONO
   300Hz +/- 5Hz
   100% Modulating
3. Tune the VCR to the appropriate channel (same as that provided by the signal generator) and adjust the R7007 ((MPX) INPUT LEVEL) so that the voltage at pin 4 of U4901 is 245 +/- 8mVrms.

Note:
If the generator cannot produce 100% modulation, multiply the specification provided in step 3 by the modulation level used (available).

Example:
30% (Modulation) X 245 +/- 8mVrms
(Specification) = 73.5 +/- 2.4 mVrms (New Specification).

CHROMINANCE NOISE REDUCTION ADJUSTMENT (CNR) (Model: F)

Purpose:
To improve the Playback Chroma S/N.

Symptom of Misadjustment:
Playback interchangeability is inadequate.

Test Point : TP3004 (Main C.B.A.)
Adjustment : R3204, R3205 (Main C.B.A.)
Specification : Less than 50mVp-p
Input : Video Input Jack
NTSC Color Bar (W/WHITE WINDOW)
Mode : SP self recording and playback
Equipment : Oscilloscope,
MTSC VIdeo Pattern Generator,
Blank Tape

1. Supply NTSC Color Bar Signal to the Video Input Jack and make a recording in SP mode.
2. Playback the recording and adjust R3204 (CNR PHASE) and R3205 (CNR GAIN) alternately so that the Chroma Signal at TP3004 is at minimum.
3. Make sure that the Chroma Signal at TP3004 is less than 50mVp-p.

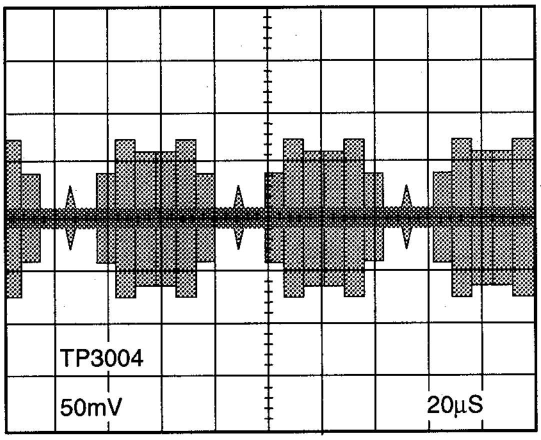


Fig. E3-1 (before adjustment)

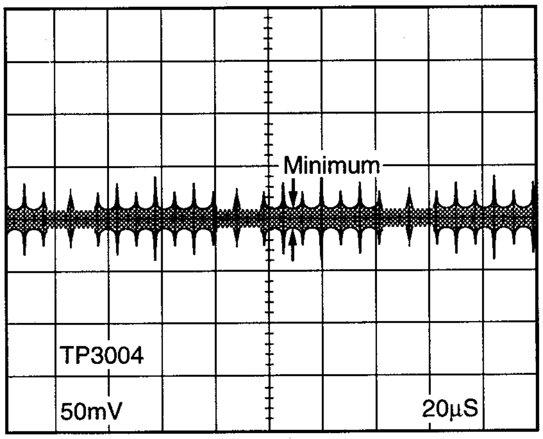
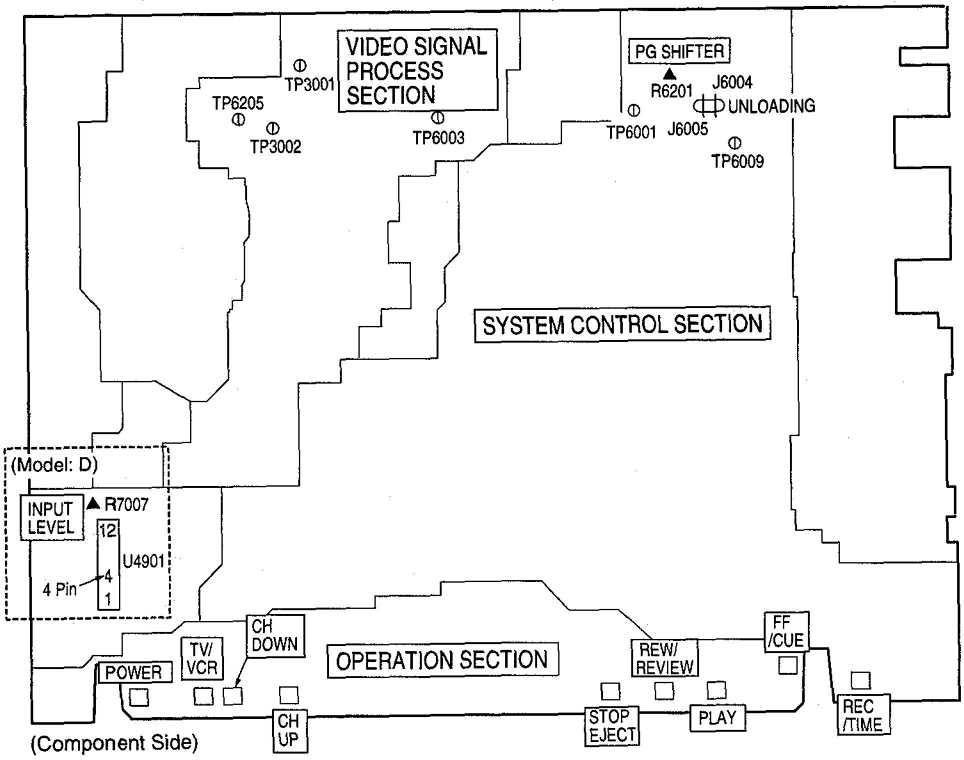


Fig. E3-2 (after adjustment)

TEST POINTS AND CONTROL LOCATION

Main C.B.A. (A, B, C, D)

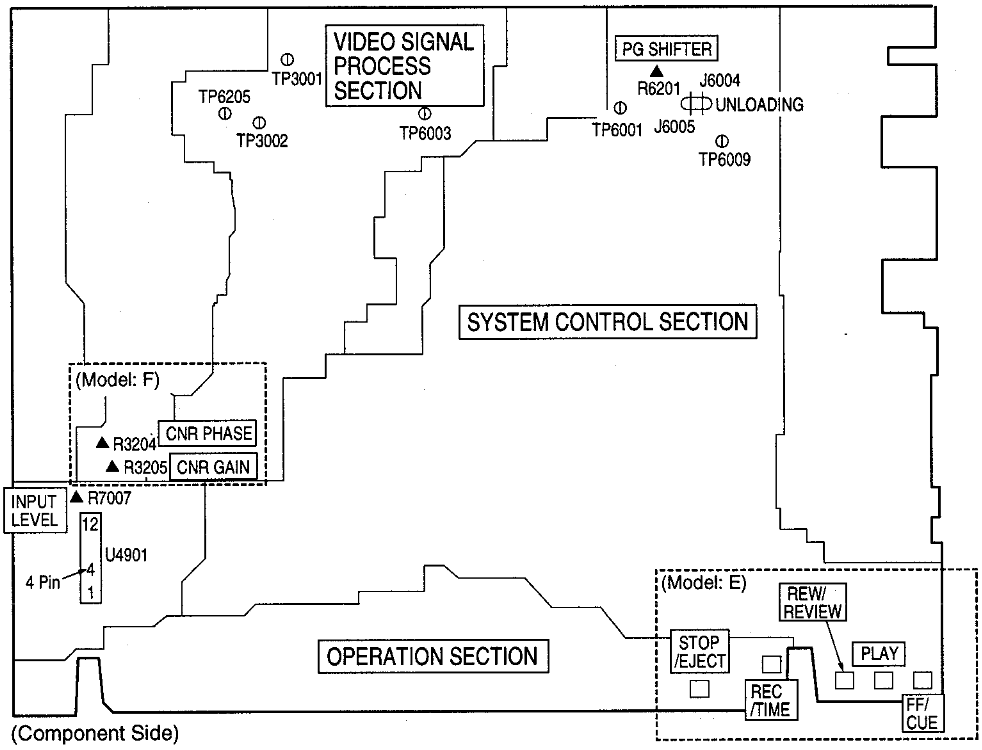

VIDEO SIGNAL PROCESS SECTION
TP3001
TP6205
TP3002
TP6003
PG SHIFTER
R6201
J6004
UNLOADING
TP6001
J6005
TP6009
SYSTEM CONTROL SECTION
(Model: D)
INPUT LEVEL
R7007
12
U4901
4 Pin
4
1
CH DOWN
TV/ VCR
POWER
OPERATION SECTION
REW/ REVIEW
FF /CUE
CH UP
STOP EJECT
PLAY
REC /TIME
(Component Side)

Function of important Test Points on Main C.B.A.	
TP3001	Video Signal to Jack
TP3002	REC/PB Video envelope signal
TP6001	Service Test Point (inhibit sensors)
TP6003	defeat Auto tracking function(connect to +5V(TP6009)
TP6009	+5V
TP6205	Head SW.

Test Point Information

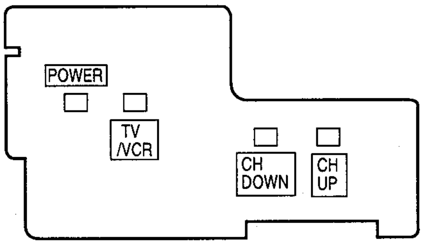
⦶ Test Point with a jumper wire across a hole in the P.C.B.

Main C.B.A. (E, F)


VIDEO SIGNAL PROCESS SECTION
TP3001
TP6205
TP3002
TP6003
PG SHIFTER
R6201
J6004
UNLOADING
TP6001
J6005
TP6009
SYSTEM CONTROL SECTION
(Model: F)
R3204
CNR PHASE
R3205
CNR GAIN
INPUT LEVEL
R7007
12
U4901
4 Pin
4
1
OPERATION SECTION
(Model: E)
REW/ REVIEW
STOP /EJECT
PLAY
REC /TIME
FF/ CUE

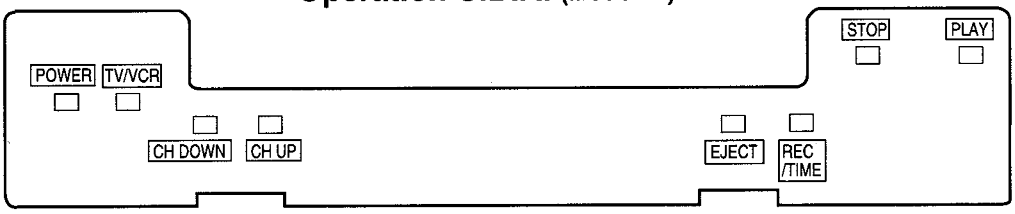
(Component Side)

Operation C.B.A. (Model: E)


POWER
TV /VCR
CH DOWN
CH UP

(Component Side)

Operation C.B.A. (Model: F)


POWER
TV/VCR
CH DOWN
CH UP
STOP
PLAY
EJECT
REC /TIME

(Component Side)

— MEMO —

SCHEMATIC DIAGRAMS

SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES

Important safety notice

Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

Replacement parts

1. Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.
2. To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.
3. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

Test point information

⦶ :Test point with a jumper wire across a hole in P.C.B.
▭→ :Test point with a component lead on the foil side.
⊘ :Test point with no test pin.
● :Test point with a test pin.

How to read Schematic and C.B.A. Diagrams

1. The Mark "■ " indicates leaded component.

Example: ■ R1002

2. Voltage Measurement

a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

3. Indication for Zener Voltage of Zener Diodes

The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

Example:
(6.2V)......Zener Voltage

4. How to identify Connectors on Schematic Diagrams

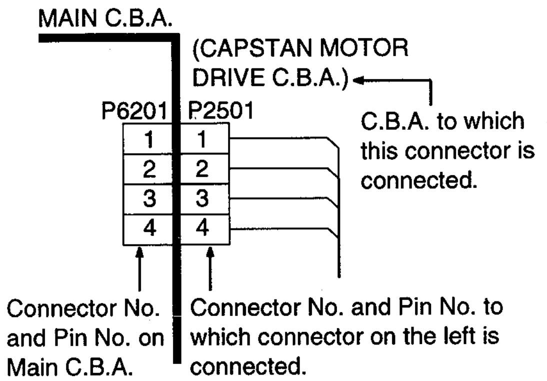
Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to, in other words, its counter part.

Connections between large P.C.B.s and small circuit boards are illustrated on the large P.C.B. Schematics.

Use the interconnection schematic diagram to find the connection between associated connectors.

Example:

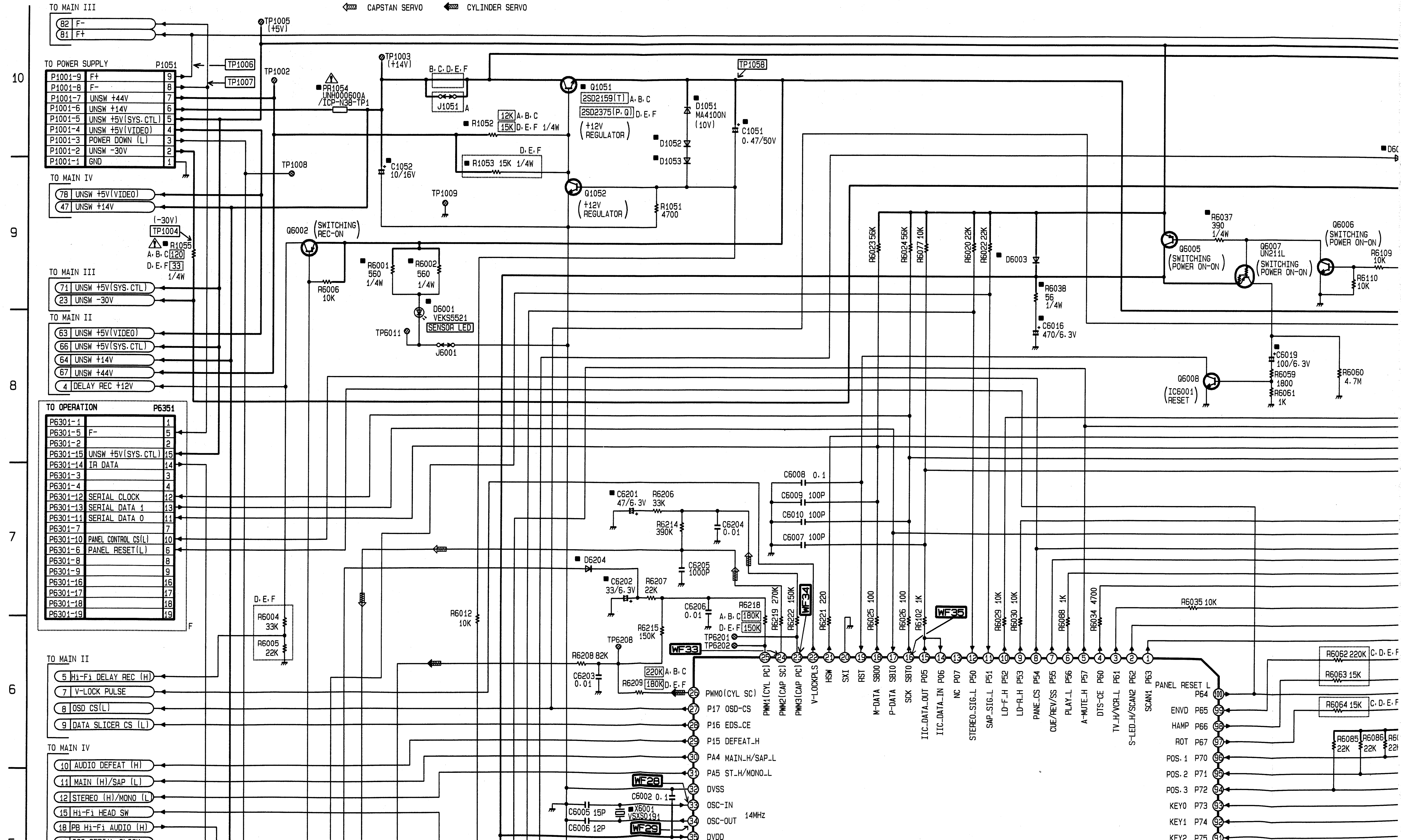
The connections between C.B.A.s are as shown below.


MAIN C.B.A.
(CAPSTAN MOTOR DRIVE C.B.A.)
P6201
P2501
1
2
3
4
1
2
3
4
C.B.A. to which this connector is connected.
Connector No. and Pin No. on Main C.B.A.
Connector No. and Pin No. to which connector on the left is connected.

Comparison chart of models & marks used in Schematic and C.B.A. Diagrams

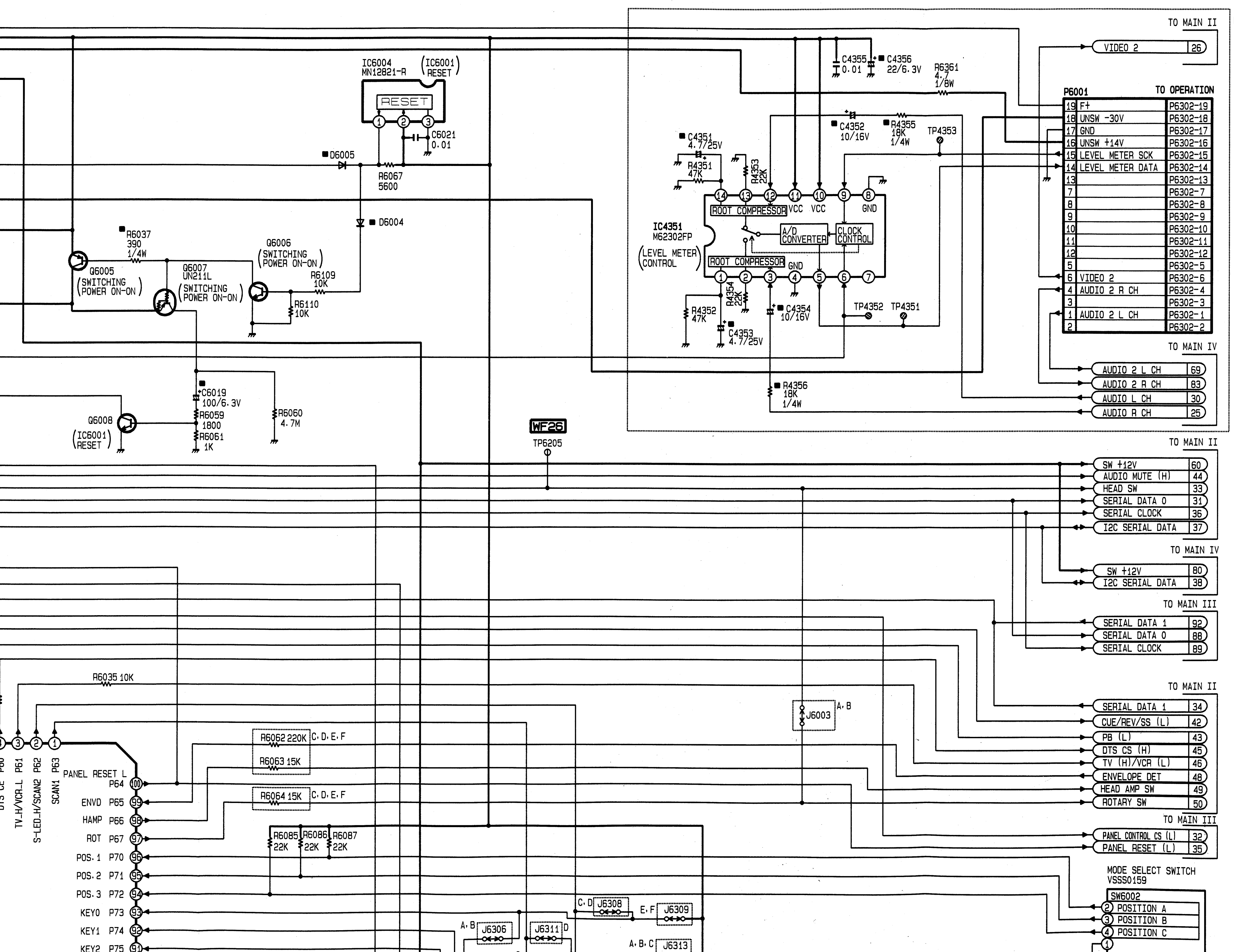
MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

MAIN I (POWER SUPPLY/SYSTEM CONTROL/SERVO) / JUNCTION SCHEMATIC DIAGRAM


10
9
8
7
6
CAPSTAN SERVO
CYLINDER SERVO
TO MAIN III
82 F-
81 F+
TO POWER SUPPLY
P1051
P1001-9 F+ 9
P1001-8 F- 8
P1001-7 UNSW +44V 7
P1001-6 UNSW +14V 6
P1001-5 UNSW +5V(SYS.CTL) 5
P1001-4 UNSW +5V(VIDEO) 4
P1001-3 POWER DOWN (L) 3
P1001-2 UNSW -30V 2
P1001-1 GND 1
TP1006
TP1007
TP1005 (+5V)
TP1002
TP1003 (+14V)
TP1008
TP1009
TP1056
PR1054 UNH000600A /ICP-N38-TP1
B,C,D,E,F
J1051 A
R1052 12K A,B,C 15K D,E,F 1/4W
D,E,F
R1053 15K 1/4W
Q1051 2SD2159(T) A,B,C 2SD2375(P,Q) D,E,F (+12V REGULATOR)
D1051 MA4100N (10V)
C1051 0.47/50V
D1052
D1053
C1052 10/16V
Q1052 (+12V REGULATOR)
R1051 4700
TO MAIN IV
78 UNSW +5V(VIDEO)
47 UNSW +14V
(-30V) TP1004
R1055 A,B,C 120 D,E,F 33 1/4W
Q6002 (SWITCHING REC-ON)
R6006 10K
R6001 560 1/4W
R6002 560 1/4W
D6001 VEKS5521 SENSOR LED
TP6011
J6001
TO MAIN III
71 UNSW +5V(SYS.CTL)
23 UNSW -30V
TO MAIN II
63 UNSW +5V(VIDEO)
66 UNSW +5V(SYS.CTL)
64 UNSW +14V
67 UNSW +44V
4 DELAY REC +12V
TO OPERATION
P6351
P6301-1 1
P6301-5 F- 5
P6301-2 2
P6301-15 UNSW +5V(SYS.CTL) 15
P6301-14 IR DATA 14
P6301-3 3
P6301-4 4
P6301-12 SERIAL CLOCK 12
P6301-13 SERIAL DATA 1 13
P6301-11 SERIAL DATA 0 11
P6301-7 7
P6301-10 PANEL CONTROL CS(L) 10
P6301-6 PANEL RESET(L) 6
P6301-8 8
P6301-9 9
P6301-16 16
P6301-17 17
P6301-18 18
P6301-19 19
F
D,E,F
R6004 33K
R6005 22K
R6012 10K
TO MAIN II
5 Hi-Fi DELAY REC (H)
7 V-LOCK PULSE
8 OSD CS(L)
9 DATA SLICER CS (L)
TO MAIN IV
10 AUDIO DEFEAT (H)
11 MAIN (H)/SAP (L)
12 STEREO (H)/MONO (L)
15 Hi-Fi HEAD SW
18 PB Hi-Fi AUDIO (H)
R6023 56K
R6024 56K
R6077 10K
R6020 22K
R6022 22K
D6003
R6037 390 1/4W
R6038 56 1/4W
C6016 470/6.3V
Q6005 (SWITCHING POWER ON-ON)
Q6006 (SWITCHING POWER ON-ON)
Q6007 UN211L (SWITCHING POWER ON-ON)
R6109 10K
R6110 10K
D60
C6019 100/6.3V
R6059 1800
R6061 1K
R6060 4.7M
Q6008 (IC6001 RESET)
C6008 0.1
C6009 100P
C6010 100P
C6007 100P
C6201 47/6.3V
R6206 33K
R6214 390K
C6204 0.01
C6205 1000P
D6204
C6202 33/6.3V
R6207 22K
C6206 0.01
R6218 A,B,C 180K D,E,F 150K
R6215 150K
TP6208
TP6201
TP6202
R6219 270K
R6222 150K
WF34
R6221 220
R6025 100
R6026 100
R6102 1K
WF35
R6029 10K
R6030 10K
R6088 1K
R6034 4700
R6035 10K
WF33
R6208 82K
C6203 0.01
R6209 220K A,B,C 180K D,E,F
25 PWM1(CYL PC)
24 PWM2(CAP SC)
23 PWM3(CAP PC)
22 V-LOCKPLS
21 HSW
20 SXI
19 RST
18 M-DATA SBO0
17 P-DATA SBI0
16 SCK SBT0
15 IIC_DATA_OUT P05
14 IIC_DATA_IN P06
13 NC P07
12 STEREO_SIG_L P50
11 SAP_SIG_L P51
10 LD-F_H P52
9 LD-R_H P53
8 PANE_CS P54
7 CUE/REV/SS P55
6 PLAY_L P56
5 A-MUTE_H P57
4 DTS-CE P60
3 TV_H/VCR_L P61
2 S-LED_H/SCAN2 P62
1 SCAN1 P63
26 PWM0(CYL SC)
27 P17 OSD-CS
28 P16 EDS_CE
29 P15 DEFEAT_H
30 PA4 MAIN_H/SAP_L
31 PA5 ST_H/MONO_L
32 DVSS
33 OSC-IN
34 OSC-OUT
35 DVDD
14MHz
WF28
WF29
C6002 0.1
C6005 15P
C6006 12P
X6001 VSXS0191
PANEL RESET L
100 P64
99 ENVD P65
98 HAMP P66
97 ROT P67
96 POS.1 P70
95 POS.2 P71
94 POS.3 P72
93 KEY0 P73
92 KEY1 P74
91 KEY2 P75
R6062 220K C,D,E,F
R6063 15K
R6064 15K C,D,E,F
R6085 22K
R6086 22K

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.


TO MAIN II
F
VIDEO 2 26
IC6004 MN12821-R
(IC6001 RESET)
RESET
C6021 0.01
D6005
R6067 5600
D6004
C4355 0.01
C4356 22/6.3V
R6361 4.7 1/8W
P6001
TO OPERATION
19 F+ P6302-19
18 UNSW -30V P6302-18
17 GND P6302-17
16 UNSW +14V P6302-16
15 LEVEL METER SCK P6302-15
14 LEVEL METER DATA P6302-14
13 P6302-13
7 P6302-7
8 P6302-8
9 P6302-9
10 P6302-10
11 P6302-11
12 P6302-12
5 P6302-5
6 VIDEO 2 P6302-6
4 AUDIO 2 R CH P6302-4
3 P6302-3
1 AUDIO 2 L CH P6302-1
2 P6302-2
C4351 4.7/25V
R4351 47K
R4353 22K
C4352 10/16V
R4355 18K 1/4W
TP4353
ROOT COMPRESSOR
VCC
GND
A/D CONVERTER
CLOCK CONTROL
IC4351 M62302FP
(LEVEL METER CONTROL)
R4352 47K
R4354 22K
C4353 4.7/25V
C4354 10/16V
TP4352
TP4351
TO MAIN IV
AUDIO 2 L CH 69
AUDIO 2 R CH 83
AUDIO L CH 30
AUDIO R CH 25
R4356 18K 1/4W
R6037 390 1/4W
Q6005 (SWITCHING POWER ON-ON)
Q6007 UN211L (SWITCHING POWER ON-ON)
Q6006 (SWITCHING POWER ON-ON)
R6109 10K
R6110 10K
C6019 100/6.3V
R6059 1800
R6061 1K
R6060 4.7M
Q6008 (IC6001 RESET)
WF26
TP6205
TO MAIN II
SW +12V 60
AUDIO MUTE (H) 44
HEAD SW 33
SERIAL DATA 0 31
SERIAL CLOCK 36
I2C SERIAL DATA 37
TO MAIN IV
SW +12V 80
I2C SERIAL DATA 38
TO MAIN III
SERIAL DATA 1 92
SERIAL DATA 0 88
SERIAL CLOCK 89
R6035 10K
TO MAIN II
J6003 A, B
SERIAL DATA 1 34
CUE/REV/SS (L) 42
PB (L) 43
DTS CS (H) 45
TV (H)/VCR (L) 46
ENVELOPE DET 48
HEAD AMP SW 49
ROTARY SW 50
TO MAIN III
PANEL CONTROL CS (L) 32
PANEL RESET (L) 35
R6062 220K C, D, E, F
R6063 15K
R6064 15K C, D, E, F
R6085 22K
R6086 22K
R6087 22K
DTS CE P60
TV_H/VCR_L P61
S-LED_H/SCAN2 P62
SCAN1 P63
PANEL RESET L P64 100
ENVD P65 99
HAMP P66 98
ROT P67 97
POS.1 P70 96
POS.2 P71 95
POS.3 P72 94
KEY0 P73 93
KEY1 P74 92
KEY2 P75 91
C, D J6308
E, F J6309
A, B J6306
J6311 D
A, B, C J6313
MODE SELECT SWITCH VSSS0159
SW6002
2 POSITION A
3 POSITION B
4 POSITION C
1

I/O CHART FOR IC6001(MN675048A5A4)

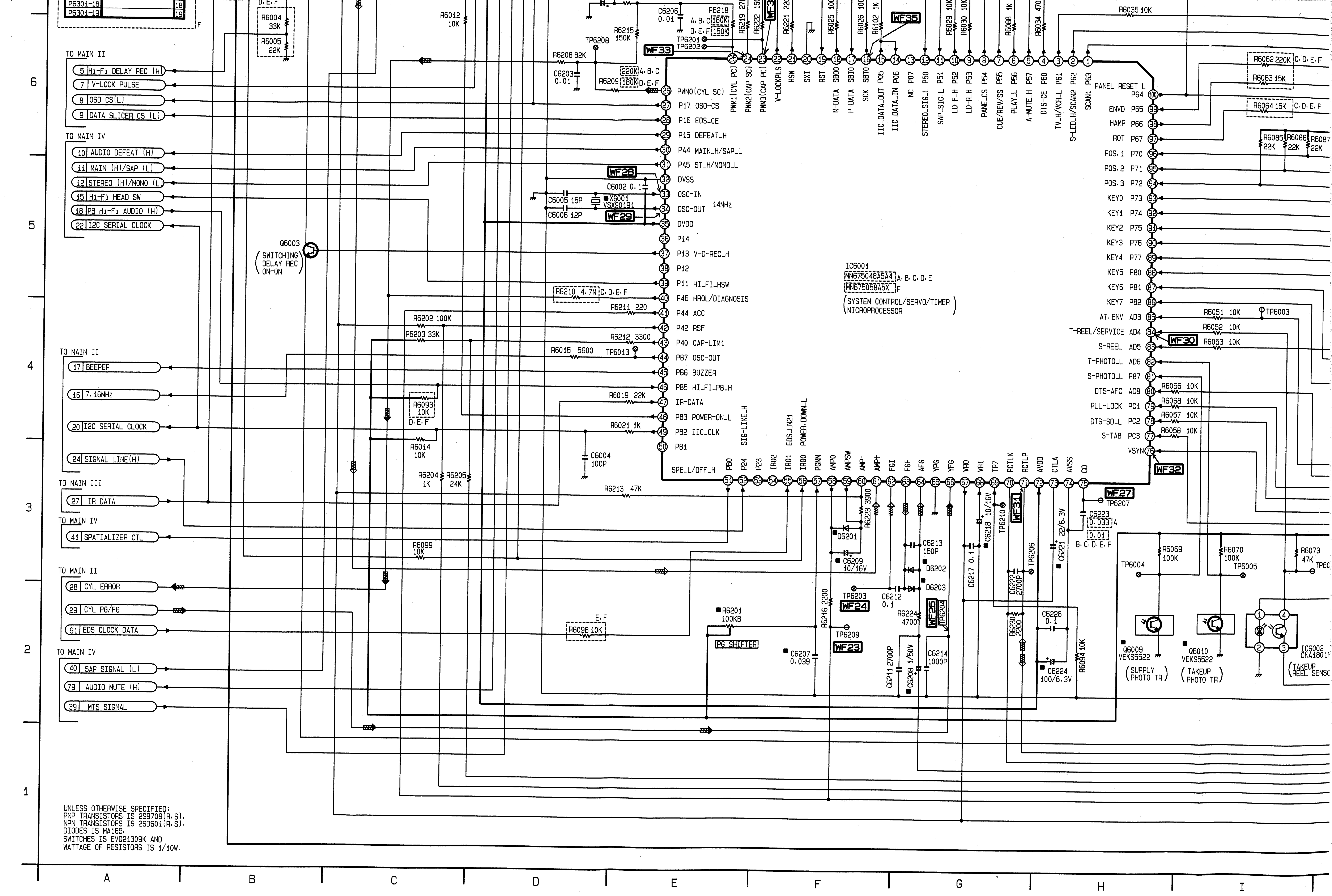
PIN NO.	I/O	FUNCTION
1	O	SCAN1
2	O	SCAN2
3	O	TV (H)/VCR (L)
4	O	DTS-CS (H)
5	O	AUDIO MUTE (H)
6	O	PB (L)
7	O	CUE/REV/SS (L)
8	O	PANEL CONTROL CS (L)
9	O	LOADING MOTOR REVERSE (H)
10	O	LOADING MOTOR FORWARD (H)
11	I	SAP SIGNAL (L)
12	I	MTS SIGNAL (L)
13	---	(Not used)
14	I	I²C SERIAL DATA
15	O	I²C SERIAL DATA
16	O	SERIAL CLOCK
17	I	SERIAL DATA 1
18	O	SERIAL DATA O
19	I	RESET
20	---	GND
21	O	HEAD SW
22	O	V-LOCK PULSE
23	O	CAP PHASE ERROR
24	O	CAP SPEED ERROR
25	O	CYL PHASE ERROR
26	O	CYL SPEED ERROR
27	O	OSD CS (L)
28	O	DATA SLICER CS (L)
29	O	AUDIO DEFEAT (H)
30	O	MAIN (H)/SAP (L)
31	O	STEREO (H)/MONO (L)
32	---	GND
33	I	OSC 1
34	O	OSC 2
35	---	VDD
36	---	(Not used)
37	O	VIDEO DELAY REC (H)
38	---	(Not used)
39	O	Hi-Fi HEAD SW
40	O	H ROLL ACCELERATION
41	O	FORCED ACCELERATION
42	O	CAP REV(H)/STOP(M)/FWD(L)
43	O	CAP TORQUE LIMIT 1
44	O	7.16MHz
45	O	BEEPER
46	I	PB Hi-Fi AUDIO (H)
47	I	IR DATA
48	O	+12V POWER ON (H)
49	O	I²C SERIAL CLOCK
50	---	(Not used)

PIN NO.	I/O	FUNCTION
51	O	SPATIALIZER CTL (H/L/OFF)
52	I	SIGNAL LINE (H)
53	---	(Not used)
54	---	(Not used)
55	I	EDS CLOCK DATA
56	I	POWER DOWN (L)
57	I	PG SHIFTER
58	O	AMP
59	O	AMP SW
60	---	AMP -
61	I	AMP +
62	I	CAP FG
63	O	CAP FG
64	I	CAP FG
65	---	GND
66	I	CYL PG/FG
67	O	V-REF 1
68	I	V-REF 2
69	---	(Not used)
70	---	CONTROL PULSE (-)
71	---	CONTROL PULSE (+)
72	---	VDD
73	---	CTL AMP
74	---	GND
75	O	PB CTL PULSE
76	---	V-SYNC
77	I	SAFETY TAB BROKEN (H)
78	I	SIGNAL (L)
79	I	CH FREQUENCY LOCK
80	I	AFC
81	I	SUPPLY PHOTO TR (L)
82	I	TAKEUP PHOTO TR (L)
83	I	SUPPLY REEL PULSE
84	I	TAKEUP REEL PULSE/SERVICE (L)
85	I	ENVELOPE VOLTAGE
86	I	KEY DATA 7
87	I	KEY DATA 6
88	I	KEY DATA 5
89	I	KEY DATA 4
90	I	KEY DATA 3
91	I	KEY DATA 2
92	I	KEY DATA 1
93	I	KEY DATA 0
94	I	MODE SW POSITION C
95	I	MODE SW POSITION B
96	I	MODE SW POSITION A
97	O	ROTARY SW
98	O	HEAD AMP SW
99	I	ENVELOPE DET
100	O	PANEL RESET (L)

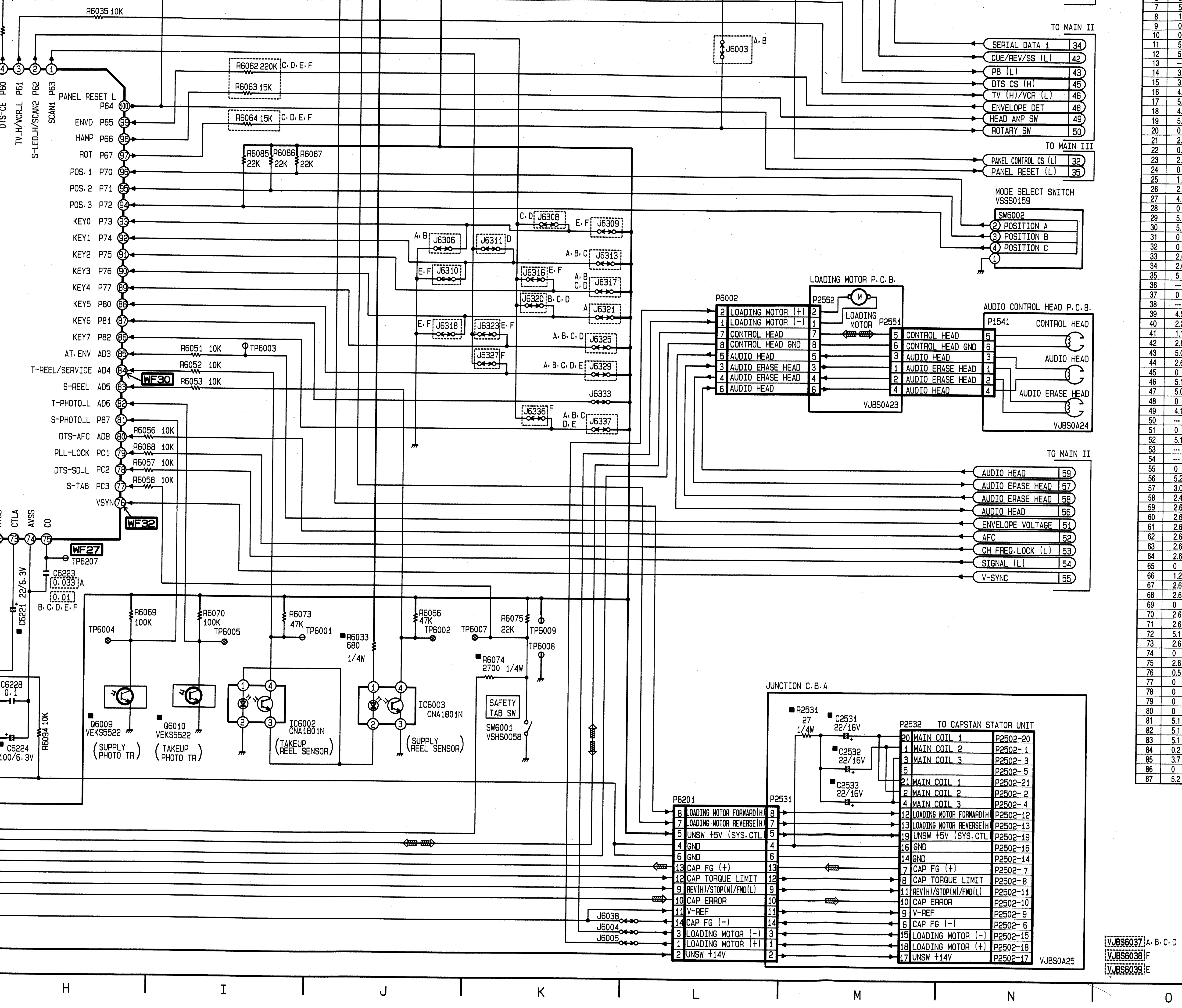
MAIN I VOLTAGE CHART

MODE / PIN NO.	STOP	REC	PLAY	FF	REW
IC4351					
1	2.1	2.1	2.1	2.1	2.1
2	0.2	1.2	0.2	0.2	0.2
3	1.5	1.5	1.5	1.5	1.5
4	0	0	0	0	0
5	5.1	5.1	5.1	5.1	5.1
6	5.1	5.1	5.1	5.1	5.1
7	---	---	---	---	---
8	0	0	0	0	0
9	5.1	5.1	5.1	5.1	5.1
10	5.1	5.1	5.1	5.1	5.1
11	5.1	5.1	5.1	5.1	5.1
12	1.5	1.5	1.5	1.5	1.5
13	0.2	0.2	0.2	0.2	0.2
14	2.1	2.1	2.1	2.1	2.1
IC6001					
1	5.1	5.1	5.1	5.1	5.1
2	1.4	1.4	1.4	1.4	1.4
3	0.1	0.1	0.1	0.1	0.1
4	0.3	0.3	0.3	0.3	0.3
5	0.2	0.2	0.2	0.2	0.2
6	5.1	5.1	0.1	5.1	5.1
7	5.1	5.1	5.1	5.1	5.1
8	1.3	1.3	1.3	1.3	1.3
9	0	0	0	0	0
10	0	0	0	0	0
11	5.0	5.0	0.1	5.0	5.0
12	5.1	5.1	5.1	5.1	5.1
13	---	---	---	---	---
14	3.9	3.9	3.9	3.9	3.9
15	3.9	3.9	3.9	3.9	3.9
16	4.5	4.5	4.5	4.5	4.5
17	5.1	5.1	5.1	5.1	5.1
18	4.7	4.7	4.7	4.7	4.7
19	5.1	5.1	5.1	5.1	5.1
20	0	0	0	0	0
21	2.6	2.6	2.6	2.6	2.6
22	0.1	0.1	0.1	0.1	0.1
23	2.7	2.7	2.7	2.7	2.7
24	0	2.6	2.6	2.6	2.6
25	1.9	2.3	2.3	2.6	2.6
26	2.6	2.6	2.6	2.6	2.6
27	4.1	4.1	4.1	4.1	4.1
28	0	0	0	0	0
29	5.1	5.1	5.1	5.1	5.1
30	5.1	5.1	5.1	5.1	5.1
31	0	0	0	0	0
32	0	0	0	0	0
33	2.6	2.6	2.6	2.6	2.6

MODE / PIN NO.	STOP	REC	PLAY	FF	REW
88	5.2	5.2	5.2	5.2	5.2
89	0	0	0	0	0
90	0	0	0	0	0
91	0	0	0	0	0
92	5.0	5.0	5.0	5.0	5.0
93	1.4	1.4	1.4	1.4	1.4
94	5.2	5.2	5.2	5.2	5.2
95	0.1	5.2	5.2	5.2	5.2
96	5.1	0.1	0.1	0.1	0.1
97	2.6	2.6	2.6	2.6	2.6
98	0.1	0.1	0.1	0.1	0.1
99	0.2	0.2	0.2	0.2	0.2
100	0	0	0	0	0
IC6002					
1	1.3	1.3	1.3	1.3	1.3
2	0	0	0	0	0
3	1.3	1.3	1.3	1.3	1.3
4	0.1	0.1	0.1	0.1	0.1
IC6003					
1	0	0	0	0	0
2	1.3	1.3	1.3	1.3	1.3
3	0	0	0	0	0
4	0.1	0.1	0.1	0.1	0.1
IC6004					
1	5.3	5.3	5.3	5.3	5.3
2	5.2	5.2	5.2	5.2	5.2
3	0	0	0	0	0
Q1051					
E	12.0	12.0	12.0	12.0	12.0
C	13.2	13.2	13.2	13.2	13.2
B	12.6	11.6	12.6	12.6	12.6
Q1052					
E	0	0	0	0	0
C	12.6	11.6	12.6	12.6	12.6
B	0.7	0.7	0.7	0.7	0.7
Q6002					
E	12.1	12.1	12.1	12.1	12.1
C	0.5	12.1	0.5	0.5	0.5
B	12.1	11.2	12.1	12.1	12.1
Q6003					
E	0.4	1.1	0.4	0.4	0.4
C	12.1	11.2	12.1	12.1	12.1
B	0	5.0	0	0	0
Q6005					
E	5.1	5.1	5.1	5.1	5.1
C	5.1	5.1	5.1	5.1	5.1
B	4.4	4.4	4.4	4.4	4.4
Q6006					
E	0	0	0	0	0


P6301-18
P6301-19
TO MAIN II
5 Hi-Fi DELAY REC (H)
7 V-LOCK PULSE
8 OSD CS(L)
9 DATA SLICER CS (L)
TO MAIN IV
10 AUDIO DEFEAT (H)
11 MAIN (H)/SAP (L)
12 STEREO (H)/MONO (L)
15 Hi-Fi HEAD SW
18 PB Hi-Fi AUDIO (H)
22 I2C SERIAL CLOCK
Q6003
SWITCHING DELAY REC ON-ON
TO MAIN II
17 BEEPER
16 7.16MHz
20 I2C SERIAL CLOCK
24 SIGNAL LINE(H)
TO MAIN III
27 IR DATA
TO MAIN IV
41 SPATIALIZER CTL
TO MAIN II
28 CYL ERROR
29 CYL PG/FG
91 EDS CLOCK DATA
TO MAIN IV
40 SAP SIGNAL (L)
79 AUDIO MUTE (H)
39 MTS SIGNAL
R6004 33K
R6005 22K
D.E.F
R6012 10K
R6208 82K
C6203 0.01
R6209 180K D.E.F
220K A.B.C
R6215 150K
TP6208
C6206 0.01
R6218 180K A.B.C
150K D.E.F
TP6201
TP6202
WF33
WF35
R6219 270
R6222 150
R6221 220
R6025 100
R6026 100
R6102 1K
R6029 10K
R6030 10K
R6088 1K
R6034 470
R6035 10K
R6062 220K C.D.E.F
R6063 15K
R6064 15K C.D.E.F
R6085 22K
R6086 22K
R6087 22K
WF28
C6002 0.1
C6005 15P
C6006 12P
X6001 VSXS0191
14MHz
WF29
R6210 4.7M C.D.E.F
R6211 220
R6202 100K
R6203 33K
R6212 3300
R6015 5600
TP6013
R6093 10K D.E.F
R6019 22K
R6021 1K
R6014 10K
C6004 100P
R6204 1K
R6205 24K
R6213 47K
R6099 10K
E.F R6098 10K
R6201 100KB
PG SHIFTER
R6216 2200
C6207 0.039
TP6203
WF24
TP6209
WF23
R6223 3900
D6201
C6209 10/16V
C6213 150P
D6202
D6203
C6212 0.1
R6224 4700
WF25
TP6204
C6211 2700P
C6208 1/50V
C6214 1000P
C6217 0.1
C6218 10/16V
TP6210
WF31
C6222 2700P
TP6206
R6230 2200
C6221 22/6.3V
C6228 0.1
C6224 100/6.3V
R6094 10K
C6223 0.033 A
0.01 B.C.D.E.F
WF27
TP6207
IC6001
MN675046A5A4 A.B.C.D.E
MN675058A5X F
(SYSTEM CONTROL/SERVO/TIMER MICROPROCESSOR)
25 PWM1(CYL PC)
24 PWM2(CAP SC)
23 PWM3(CAP PC)
22 V-LOCKPLS
21 HSW
20 SXI
19 RST
18 M-DATA SB00
17 P-DATA SBI0
16 SCK SBT0
15 IIC_DATA_OUT P05
14 IIC_DATA_IN P06
13 NC P07
12 STEREO_SIG_L P50
11 SAP_SIG_L P51
10 LD-F_H P52
9 LD-R_H P53
8 PANE_CS P54
7 CUE/REV/SS P55
6 PLAY_L P56
5 A-MUTE_H P57
4 DTS-CE P60
3 TV_H/VCR_L P61
2 S-LED_H/SCAN2 P62
1 SCAN1 P63
26 PWM0(CYL SC)
27 P17 OSD-CS
28 P16 EDS_CE
29 P15 DEFEAT_H
30 PA4 MAIN_H/SAP_L
31 PA5 ST_H/MONO_L
32 DVSS
33 OSC-IN
34 OSC-OUT
35 DVDD
36 P14
37 P13 V-D-REC_H
38 P12
39 P11 HI_FI_HSW
40 P46 HROL/DIAGNOSIS
41 P44 ACC
42 P42 RSF
43 P40 CAP-LIM1
44 PB7 OSC-OUT
45 PB6 BUZZER
46 PB5 HI_FI_PB_H
47 IR-DATA
48 PB3 POWER-ON_L
49 PB2 IIC_CLK
50 PB1
SPE_L/OFF_H
51 PB0
52 P24 SIG-LINE_H
53 P23
54 IRQ2
55 IRQ1 EDS_LN21
56 IRQ0 POWER.DOWN_L
57 PGMM
58 AMPO
59 AMPSW
60 AMP-
61 AMP+
62 FGI
63 FGF
64 AFG
65 YPG
66 YFG
67 VRO
68 VRI
69 TPZ
70 RCTLN
71 RCTLP
72 AVDD
73 CTLA
74 AVSS
75 CO
PANEL RESET L P64 100
ENVD P65 99
HAMP P66 98
ROT P67 97
POS.1 P70 96
POS.2 P71 95
POS.3 P72 94
KEY0 P73 93
KEY1 P74 92
KEY2 P75 91
KEY3 P76 90
KEY4 P77 89
KEY5 P80 88
KEY6 P81 87
KEY7 P82 86
AT.ENV AD3 85
T-REEL/SERVICE AD4 84
S-REEL AD5 83
T-PHOTO_L AD6 82
S-PHOTO_L P87 81
DTS-AFC AD8 80
PLL-LOCK PC1 79
DTS-SD_L PC2 78
S-TAB PC3 77
VSYN 76
WF30
WF32
R6051 10K
TP6003
R6052 10K
R6053 10K
R6056 10K
R6068 10K
R6057 10K
R6058 10K
TP6004
R6069 100K
R6070 100K
TP6005
R6073 47K
Q6009 VEKS5522 (SUPPLY PHOTO TR)
Q6010 VEKS5522 (TAKEUP PHOTO TR)
IC6002 CNA1801N (TAKEUP REEL SENSOR)
A B C D E F G H I
1 2 3 4 5 6

UNLESS OTHERWISE SPECIFIED:
PNP TRANSISTORS IS 2SB709(R.S).
NPN TRANSISTORS IS 2SD601(R.S).
DIODES IS MA165.
SWITCHES IS EVQ21309K AND
WATTAGE OF RESISTORS IS 1/10W.


R6035 10K
DTS-CE P60
TV-H/VCR-L P61
S-LED-H/SCAN2 P62
SCAN1 P63
PANEL RESET L P64
ENVD P65
HAMP P66
ROT P67
POS.1 P70
POS.2 P71
POS.3 P72
KEY0 P73
KEY1 P74
KEY2 P75
KEY3 P76
KEY4 P77
KEY5 P80
KEY6 P81
KEY7 P82
AT.ENV AD3
T-REEL/SERVICE AD4
S-REEL AD5
T-PHOTO-L AD6
S-PHOTO-L P87
DTS-AFC AD8
PLL-LOCK PC1
DTS-SD-L PC2
S-TAB PC3
VSYN
CTLA
AVSS
CO
WF30
WF32
WF27
TP6207
C6223 0.033 A
0.01 B,C,D,E,F
C6221 22/6.3V
C6228 0.1
C6224 100/6.3V
R6094 10K
R6062 220K C,D,E,F
R6063 15K
R6064 15K C,D,E,F
R6085 22K
R6086 22K
R6087 22K
J6003 A,B
J6306 A,B
J6311 D
J6310 E,F
J6308 C,D
J6309 E,F
J6313 A,B,C
J6316 E,F
J6317 A,B C,D
J6320 B,C,D
J6321 A
J6318 E,F
J6323 E,F
J6325 A,B,C,D
J6327 F
J6329 A,B,C,D,E
J6333
J6336 F
J6337 A,B,C D,E
R6051 10K
TP6003
R6052 10K
R6053 10K
R6056 10K
R6068 10K
R6057 10K
R6058 10K
TO MAIN II
SERIAL DATA 1 34
CUE/REV/SS (L) 42
PB (L) 43
DTS CS (H) 45
TV (H)/VCR (L) 46
ENVELOPE DET 48
HEAD AMP SW 49
ROTARY SW 50
TO MAIN III
PANEL CONTROL CS (L) 32
PANEL RESET (L) 35
MODE SELECT SWITCH VSSS0159
SW6002
POSITION A
POSITION B
POSITION C
LOADING MOTOR P.C.B.
P2552
LOADING MOTOR
P2551
P6002
LOADING MOTOR (+)
LOADING MOTOR (-)
CONTROL HEAD
CONTROL HEAD GND
AUDIO HEAD
AUDIO ERASE HEAD
AUDIO ERASE HEAD
AUDIO HEAD
VJBS0A23
AUDIO CONTROL HEAD P.C.B.
P1541
CONTROL HEAD
AUDIO HEAD
AUDIO ERASE HEAD
VJBS0A24
TO MAIN II
AUDIO HEAD 59
AUDIO ERASE HEAD 57
AUDIO ERASE HEAD 58
AUDIO HEAD 56
ENVELOPE VOLTAGE 51
AFC 52
CH FREQ.LOCK (L) 53
SIGNAL (L) 54
V-SYNC 55
R6069 100K
TP6004
R6070 100K
TP6005
R6073 47K
TP6001
R6033 680 1/4W
R6066 47K
TP6002
TP6007
R6075 22K
TP6009
TP6008
R6074 2700 1/4W
Q6009 VEKS5522
(SUPPLY PHOTO TR)
Q6010 VEKS5522
(TAKEUP PHOTO TR)
IC6002 CNA1801N
(TAKEUP REEL SENSOR)
IC6003 CNA1801N
(SUPPLY REEL SENSOR)
SAFETY TAB SW
SW6001 VSHS0058
JUNCTION C.B.A
R2531 27 1/4W
C2531 22/16V
C2532 22/16V
C2533 22/16V
P2532 TO CAPSTAN STATOR UNIT
MAIN COIL 1
MAIN COIL 2
MAIN COIL 3
P6201
P2531
LOADING MOTOR FORWARD(H)
LOADING MOTOR REVERSE(H)
UNSW +5V (SYS.CTL)
GND
CAP FG (+)
CAP TORQUE LIMIT
REV(H)/STOP(M)/FWD(L)
CAP ERROR
V-REF
CAP FG (-)
LOADING MOTOR (-)
LOADING MOTOR (+)
UNSW +14V
J6038
J6004
J6005
VJBS0A25
VJBS6037 A,B,C,D
VJBS6038 F
VJBS6039 E
H
I
J
K
L
M
N
O
P

7	5.1	5.1	5.1	5.1	5.1
8	1.3	1.3	1.3	1.3	1.3
9	0	0	0	0	0
10	0	0	0	0	0
11	5.0	5.0	0.1	5.0	5.0
12	5.1	5.1	5.1	5.1	5.1
13	---	---	---	---	---
14	3.9	3.9	3.9	3.9	3.9
15	3.9	3.9	3.9	3.9	3.9
16	4.5	4.5	4.5	4.5	4.5
17	5.1	5.1	5.1	5.1	5.1
18	4.7	4.7	4.7	4.7	4.7
19	5.1	5.1	5.1	5.1	5.1
20	0	0	0	0	0
21	2.6	2.6	2.6	2.6	2.6
22	0.1	0.1	0.1	0.1	0.1
23	2.7	2.7	2.7	2.7	2.7
24	0	2.6	2.6	2.6	2.6
25	1.9	2.3	2.3	2.6	2.6
26	2.6	2.6	2.6	2.6	2.6
27	4.1	4.1	4.1	4.1	4.1
28	0	0	0	0	0
29	5.1	5.1	5.1	5.1	5.1
30	5.1	5.1	5.1	5.1	5.1
31	0	0	0	0	0
32	0	0	0	0	0
33	2.6	2.6	2.6	2.6	2.6
34	2.6	2.6	2.6	2.6	2.6
35	5.1	5.1	5.1	5.1	5.1
36	---	---	---	---	---
37	0	5.1	0	0	0
38	---	---	---	---	---
39	4.5	4.5	5.2	4.5	4.5
40	2.2	2.2	2.2	2.2	2.2
41	1.1	2.4	2.4	2.4	2.4
42	2.6	0.1	0.1	0.1	5.0
43	5.0	5.0	5.0	5.0	5.0
44	2.6	2.6	2.6	2.6	2.6
45	0	0	0	0	0
46	5.1	5.1	5.1	5.1	5.1
47	5.0	5.0	5.0	5.0	5.0
48	0	0	0	0	0
49	4.1	4.1	4.1	4.1	4.1
50	---	---	---	---	---
51	0	0	0	0	0
52	5.1	5.1	5.1	5.1	5.1
53	---	---	---	---	---
54	---	---	---	---	---
55	0	0	0	0	0
56	5.2	5.2	5.2	5.2	5.2
57	3.0	3.0	3.0	3.0	3.0
58	2.4	2.4	2.4	2.4	2.4
59	2.6	2.6	2.6	2.6	2.6
60	2.6	2.6	2.6	2.6	2.6
61	2.6	2.6	2.6	2.6	2.6
62	2.6	2.6	2.6	2.6	2.6
63	2.6	2.6	2.6	2.6	2.6
64	2.6	2.6	2.6	2.6	2.6
65	0	0	0	0	0
66	1.2	1.2	1.2	1.2	1.2
67	2.6	2.6	2.6	2.6	2.6
68	2.6	2.6	2.6	2.6	2.6
69	0	0	0	0	0
70	2.6	2.6	2.6	2.6	2.6
71	2.6	2.6	0	2.6	2.6
72	5.1	5.1	5.1	5.1	5.1
73	2.6	2.6	2.6	2.6	2.6
74	0	0	0	0	0
75	2.6	2.6	2.6	2.6	2.6
76	0.5	0.5	0.5	0.5	0.5
77	0	0	0	0	0
78	0	0	0	0	0
79	0	0	0	0	0
80	0	0	0	0	0
81	5.1	5.1	5.1	5.1	5.1
82	5.1	5.1	5.1	5.1	5.1
83	5.1	5.1	5.1	5.1	5.1
84	0.2	0.2	0.2	0.2	0.2
85	3.7	3.7	5.1	3.7	3.7
86	0	0	0	0	0
87	5.2	5.2	5.2	5.2	5.2

4	0.1	0.1	0.1	0.1	0.1
IC6004					
1	5.3	5.3	5.3	5.3	5.3
2	5.2	5.2	5.2	5.2	5.2
3	0	0	0	0	0
Q1051					
E	12.0	12.0	12.0	12.0	12.0
C	13.2	13.2	13.2	13.2	13.2
B	12.6	11.6	12.6	12.6	12.6
Q1052					
E	0	0	0	0	0
C	12.6	11.6	12.6	12.6	12.6
B	0.7	0.7	0.7	0.7	0.7
Q6002					
E	12.1	12.1	12.1	12.1	12.1
C	0.5	12.1	0.5	0.5	0.5
B	12.1	11.2	12.1	12.1	12.1
Q6003					
E	0.4	1.1	0.4	0.4	0.4
C	12.1	11.2	12.1	12.1	12.1
B	0	5.0	0	0	0
Q6005					
E	5.1	5.1	5.1	5.1	5.1
C	5.1	5.1	5.1	5.1	5.1
B	4.4	4.4	4.4	4.4	4.4
Q6006					
E	0	0	0	0	0
C	0	0	0	0	0
B	0.8	0.8	0.8	0.8	0.8
Q6007					
E	5.1	5.1	5.1	5.1	5.1
C	5.1	5.1	5.1	5.1	5.1
B	0	0	0	0	0
Q6008					
E	0	0	0	0	0
C	5.0	5.0	5.0	5.0	5.0
B	0	0	0	0	0
Q6009					
E	0	0	0	0	0
C	5.1	5.1	5.1	5.1	5.1
B	---	---	---	---	---
Q6010					
E	0	0	0	0	0
C	5.1	5.1	5.1	5.1	5.1
B	---	---	---	---	---
TP1002	43.0	43.0	43.0	43.0	43.0
TP1003	13.2	13.2	13.2	13.2	13.2
TP1004	-30.0	-30.0	-30.0	-30.0	-30.0
TP1005	5.2	5.2	5.2	5.2	5.2
TP1006	-18.9	-18.9	-18.9	-18.9	-18.9
TP1007	-24.2	-24.2	-24.2	-24.2	-24.2
TP1008	5.1	5.1	5.1	5.1	5.1
TP1009	0	0	0	0	0
TP1058	12.0	12.0	12.0	12.0	12.0
TP4351	5.1	5.1	5.1	5.1	5.1
TP4353	5.1	5.1	5.1	5.1	5.1
TP6001	0.1	0.1	0.1	0.1	0.1
TP6002	0.1	0.1	0.1	0.1	0.1
TP6003	3.4	3.4	3.0	3.4	3.4
TP6004	4.9	4.9	4.9	4.9	4.9
TP6005	5.1	5.1	5.1	5.1	5.1
TP6006	4.9	4.9	4.9	4.9	4.9
TP6007	0.3	0.3	0.3	0.3	0.3
TP6008	0	0	0	0	0
TP6009	5.1	5.1	5.1	5.1	5.1
TP6010	5.2	5.2	5.2	5.2	5.2
TP6011	0	0	0	0	0
TP6012	5.1	5.1	5.1	5.1	5.1
TP6013	2.6	2.6	2.6	2.6	2.6
TP6014	0	0	0	0	0
TP6201	2.6	2.6	2.6	2.6	2.6
TP6202	1.9	2.2	2.2	2.6	2.6
TP6203	2.6	2.6	2.6	2.6	2.6
TP6204	1.2	1.2	1.2	1.2	1.2
TP6205	2.6	2.6	2.6	2.6	2.6
TP6206	0	3.0	0	0	0
TP6207	2.6	2.6	2.6	2.6	2.6
TP6208	2.5	2.5	2.5	2.5	2.5
TP6209	1.1	2.4	2.4	2.4	2.4
TP6210	5.1	5.1	5.1	5.1	5.1

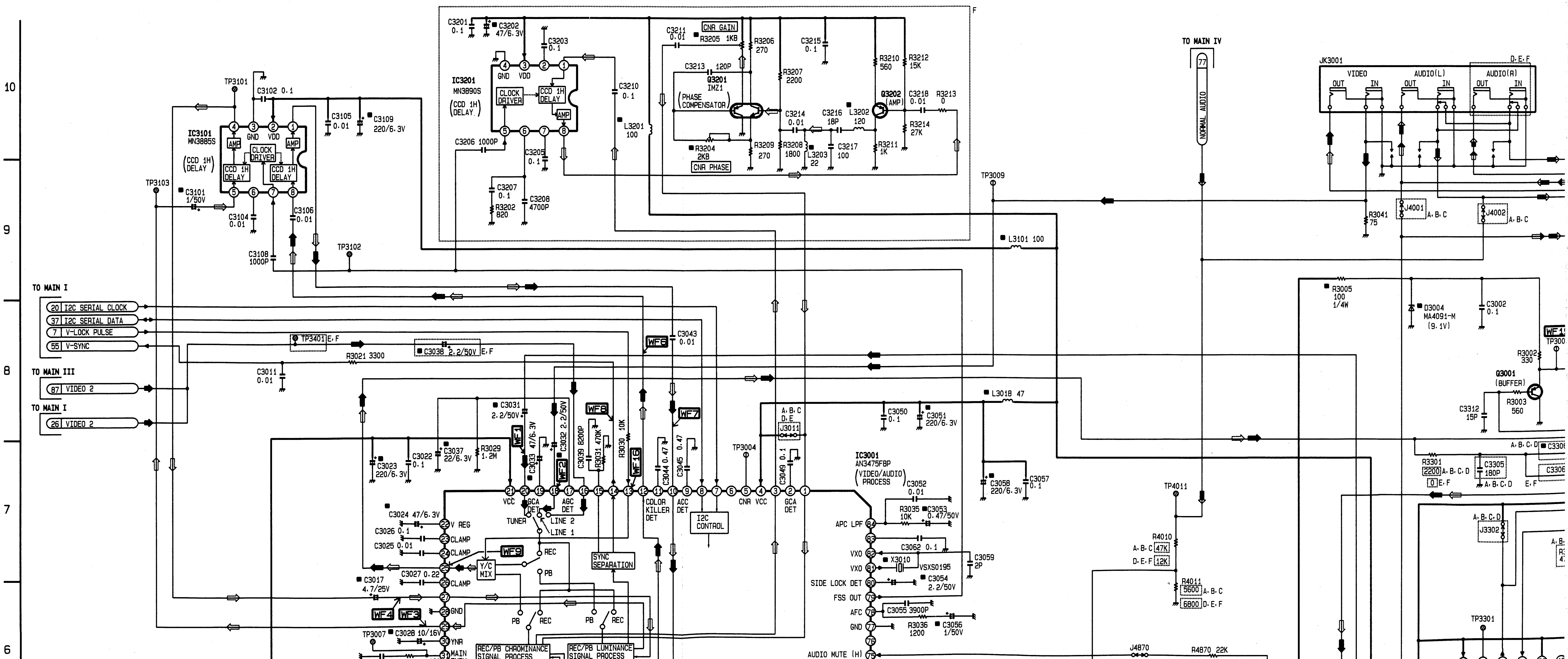
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

MAIN II (SIGNAL PROCESS/AUDIO) SCHEMATIC DIAGRAM

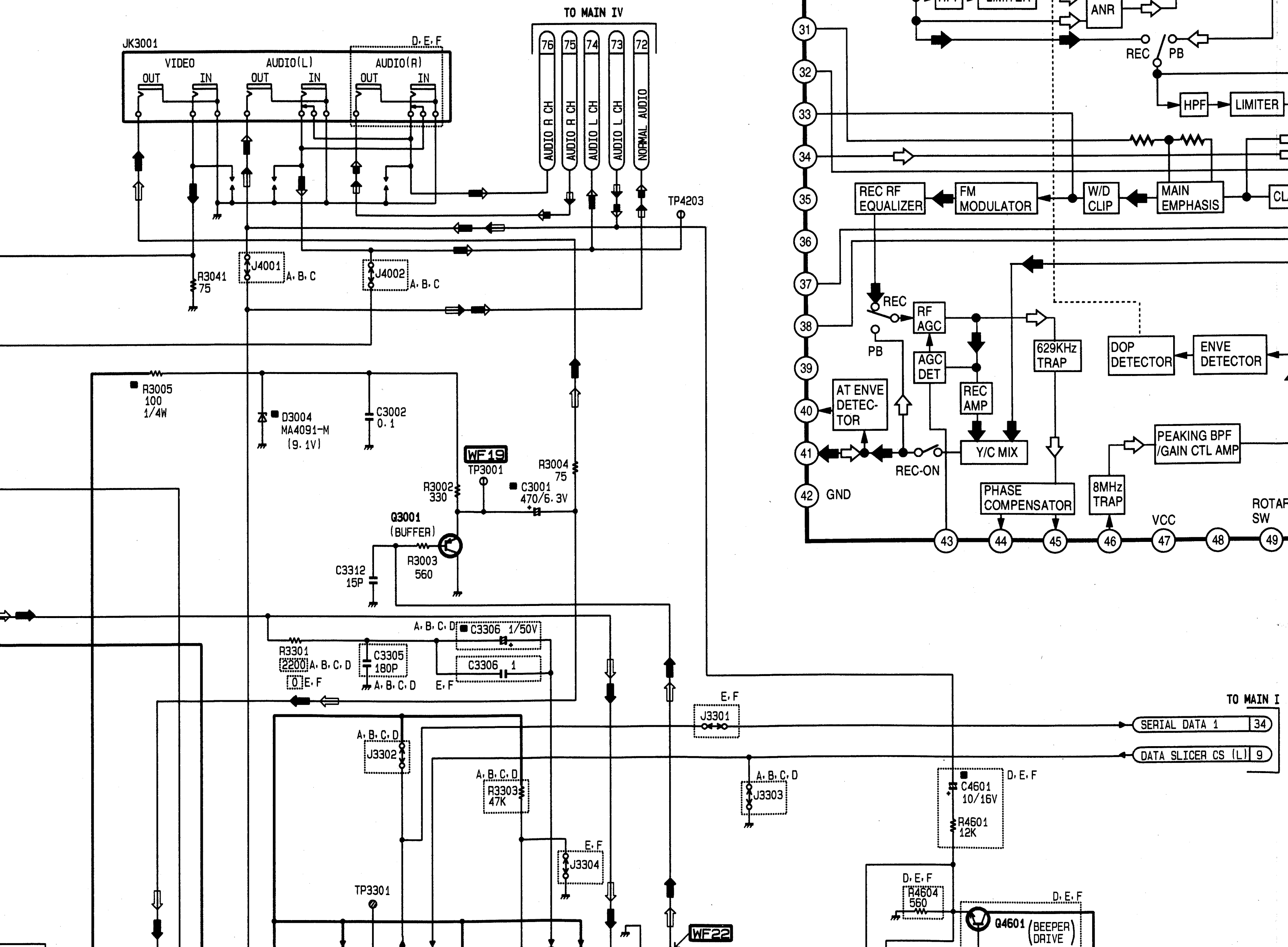
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

⬅ REC VIDEO SIGNAL ⇦ PB VIDEO SIGNAL ⬅ REC AUDIO SIGNAL ⇦ PB AUDIO SIGNAL ▨ CYLINDER SERVO



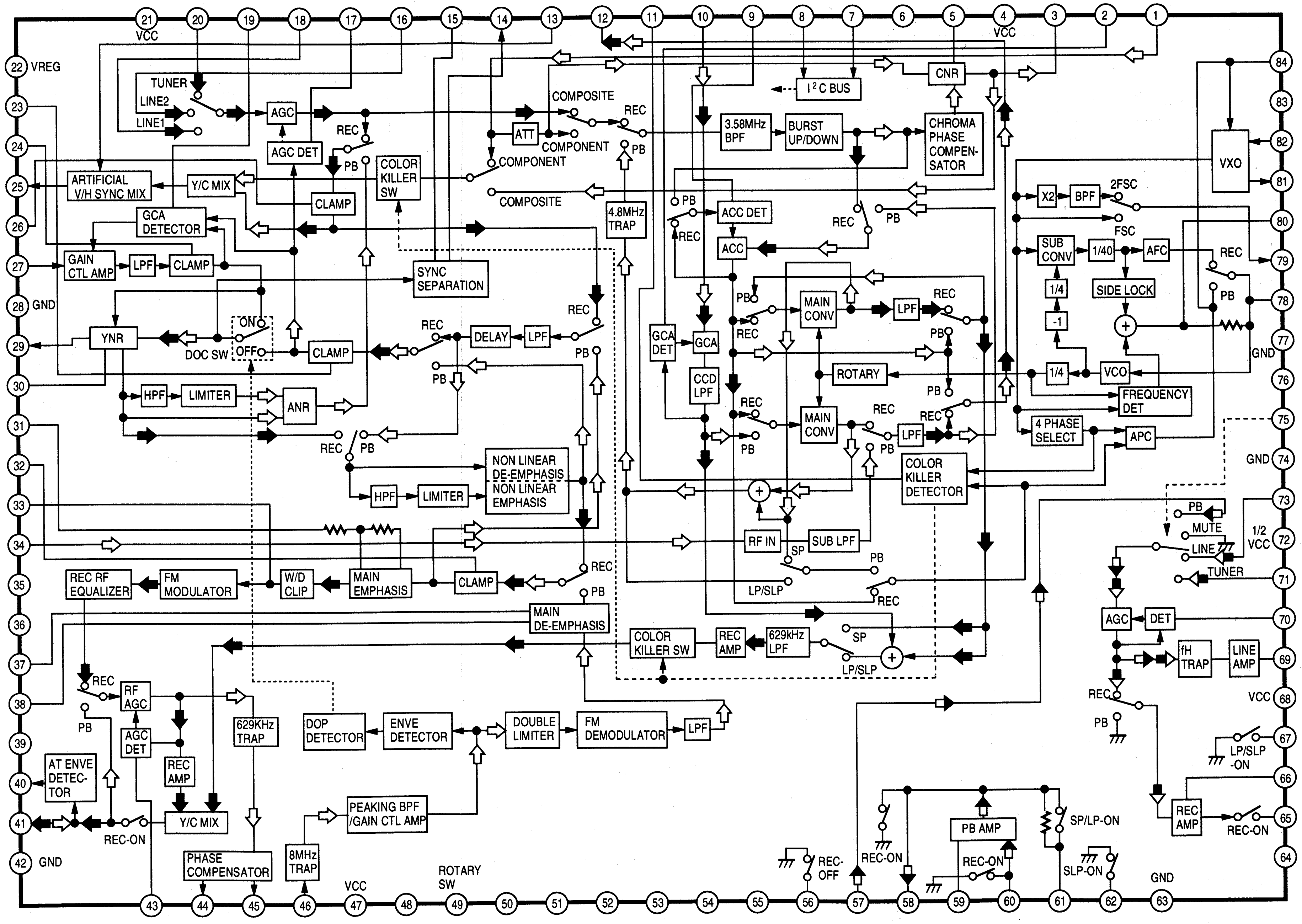
10
9
8
7
6
F
TP3101
C3102 0.1
C3105 0.01
C3109 220/6.3V
IC3101
MN3885S
(CCD 1H DELAY)
GND
VDD
AMP
CLOCK DRIVER
CCD 1H DELAY
TP3103
C3101 1/50V
C3104 0.01
C3106 0.01
C3108 1000P
TP3102
C3201 0.1
C3202 47/6.3V
C3203 0.1
IC3201
MN3890S
(CCD 1H DELAY)
C3206 1000P
C3205 0.1
C3207 0.1
R3202 820
C3208 4700P
C3210 0.1
L3201 100
C3211 0.01
CNR GAIN
R3205 1KB
R3206 270
C3213 120P
Q3201
IMZ1
(PHASE COMPENSATOR)
R3204 2KB
CNR PHASE
R3209 270
R3207 2200
R3208 1800
C3214 0.01
C3215 0.1
C3216 18P
L3203 22
L3202 120
C3217 100
R3210 560
R3212 15K
Q3202 (AMP)
C3218 0.01
R3213 0
R3214 27K
R3211 1K
TO MAIN IV
77
NORMAL AUDIO
JK3001
D.E.F
VIDEO
AUDIO(L)
AUDIO(R)
OUT
IN
TP3009
R3041 75
J4001 A.B.C
J4002 A.B.C
L3101 100
TO MAIN I
20 I2C SERIAL CLOCK
37 I2C SERIAL DATA
7 V-LOCK PULSE
55 V-SYNC
TO MAIN III
87 VIDEO 2
TO MAIN I
26 VIDEO 2
TP3401 E.F
R3021 3300
C3038 2.2/50V E.F
C3011 0.01
WF6
C3043 0.01
R3005 100 1/4W
D3004 MA4091-M (9.1V)
C3002 0.1
WF11
TP3001
R3002 330
Q3001 (BUFFER)
R3003 560
C3312 15P
L3018 47
C3031 2.2/50V
C3032 2.2/50V
WF8
WF7
WF1
WF2
WF16
C3033 47/6.3V
C3039 8200P
R3031 470K
R3030 10K
C3044 0.47
C3045 0.47
C3049 0.1
A.B.C D.E J3011
C3050 0.1
C3051 220/6.3V
TP3004
IC3001
AN3475FBP
(VIDEO/AUDIO PROCESS)
C3023 220/6.3V
C3022 0.1
C3037 22/6.3V
R3029 1.2M
VCC
GCA DET
AGC DET
TUNER
LINE 2
LINE 1
COLOR KILLER DET
ACC DET
I2C CONTROL
CNR VCC
GCA DET
SYNC SEPARATION
C3024 47/6.3V
V REG
C3026 0.1
CLAMP
C3025 0.01
CLAMP
WF9
REC
PB
Y/C MIX
C3017 4.7/25V
C3027 0.22
CLAMP
WF4
WF3
GND
TP3007
C3028 10/16V
YNR
MAIN
REC/PB CHROMINANCE SIGNAL PROCESS
REC/PB LUMINANCE SIGNAL PROCESS
APC LPF
C3052 0.01
R3035 10K
C3053 0.47/50V
C3062 0.1
VXO
X3010
VSXS0195
C3059 2P
SIDE LOCK DET
C3054 2.2/50V
FSS OUT
AFC
C3055 3900P
GND
R3036 1200
C3056 1/50V
AUDIO MUTE (H)
C3058 220/6.3V
C3057 0.1
TP4011
R4010
A.B.C 47K
D.E.F 12K
R4011
5600 A.B.C
6800 D.E.F
J4870
R4870 22K
R3301
2200 A.B.C.D
0 E.F
C3305 180P A.B.C.D
E.F
C3306
A.B.C.D
J3302
TP3301

UIT BOARD LAYOUT NOTES,
C SECTION.


JK3001
VIDEO
AUDIO(L)
AUDIO(R)
OUT
IN
D,E,F
TO MAIN IV
AUDIO R CH
AUDIO R CH
AUDIO L CH
AUDIO L CH
NORMAL AUDIO
TP4203
R3041 75
J4001 A,B,C
J4002 A,B,C
R3005 100 1/4W
D3004 MA4091-M (9.1V)
C3002 0.1
WF19
TP3001
R3004 75
R3002 330
C3001 470/6.3V
Q3001 (BUFFER)
C3312 15P
R3003 560
R3301 2200 A,B,C,D
0 E,F
C3305 180P A,B,C,D
C3306 1/50V A,B,C,D
C3306 1 E,F
J3301 E,F
TO MAIN I
SERIAL DATA 1 34
DATA SLICER CS (L) 9
J3302 A,B,C,D
R3303 47K A,B,C,D
J3303 A,B,C,D
J3304 E,F
C4601 10/16V D,E,F
R4601 12K
TP3301
R4604 560 D,E,F
Q4601 (BEEPER DRIVE) D,E,F
WF22

IC3001 Video/Audio Process IC-Block Diagram, AN3475FBP

REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL

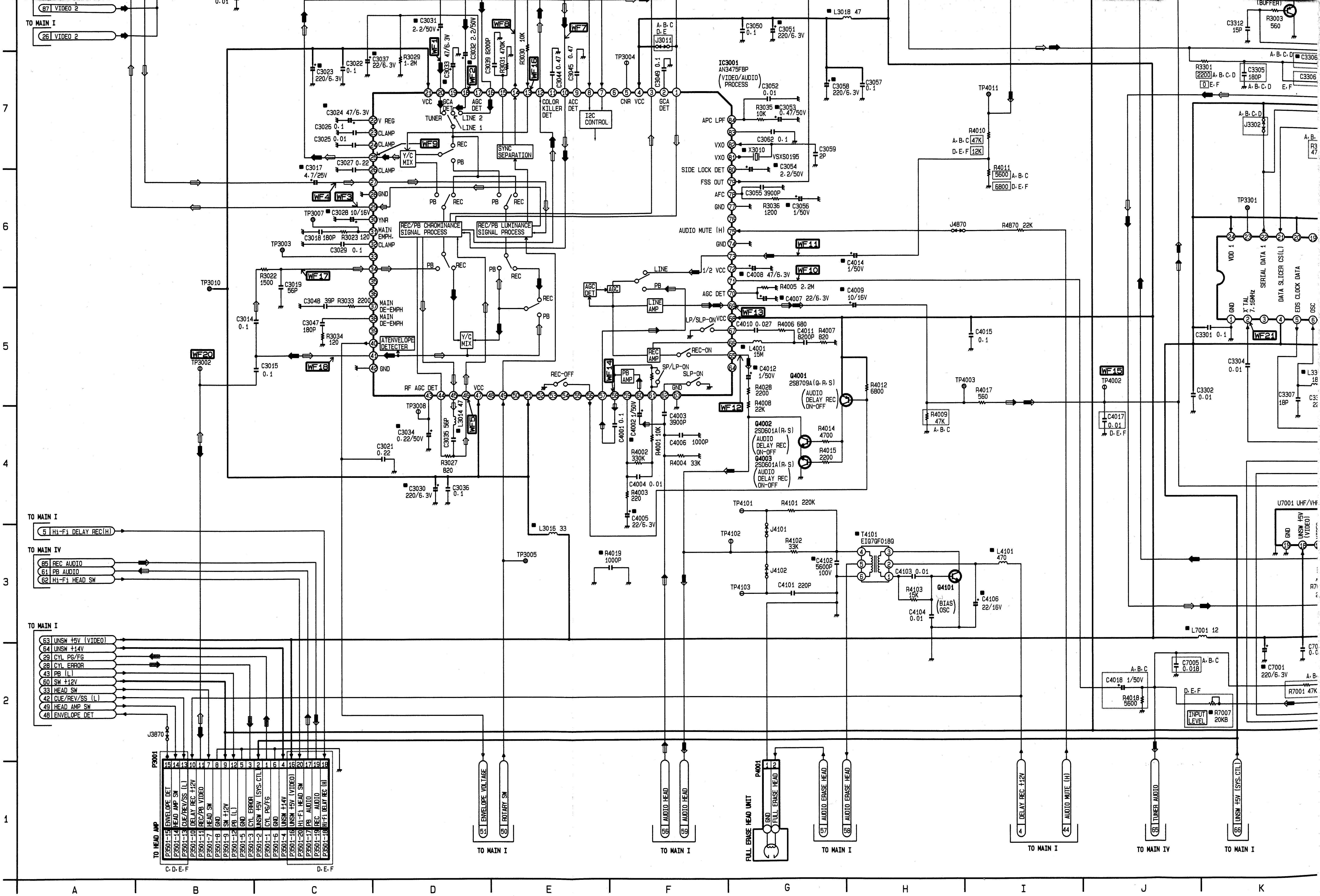

VCC
VREG
GND
TUNER
LINE2
LINE1
AGC
AGC DET
REC
PB
COLOR KILLER SW
CLAMP
ARTIFICIAL V/H SYNC MIX
Y/C MIX
GCA DETECTOR
GAIN CTL AMP
LPF
SYNC SEPARATION
YNR
DOC SW
ON
OFF
DELAY
HPF
LIMITER
ANR
NON LINEAR DE-EMPHASIS
NON LINEAR EMPHASIS
REC RF EQUALIZER
FM MODULATOR
W/D CLIP
MAIN EMPHASIS
MAIN DE-EMPHASIS
COMPOSITE
COMPONENT
ATT
4.8MHz TRAP
3.58MHz BPF
BURST UP/DOWN
CHROMA PHASE COMPEN-SATOR
CNR
I²C BUS
ACC DET
ACC
GCA DET
GCA
CCD LPF
MAIN CONV
ROTARY
COLOR KILLER DETECTOR
RF IN
SUB LPF
SP
LP/SLP
COLOR KILLER SW
REC AMP
629kHz LPF
VXO
X2
BPF
2FSC
FSC
SUB CONV
1/40
AFC
SIDE LOCK
1/4
-1
VCO
FREQUENCY DET
4 PHASE SELECT
APC
MUTE
1/2 VCC
AGC
DET
fH TRAP
LINE AMP
LP/SLP -ON
REC-ON
PB AMP
SP/LP-ON
SLP-ON
REC-OFF
RF AGC
AGC DET
AT ENVE DETEC-TOR
629KHz TRAP
DOP DETECTOR
ENVE DETECTOR
DOUBLE LIMITER
FM DEMODULATOR
PEAKING BPF /GAIN CTL AMP
8MHz TRAP
PHASE COMPENSATOR
ROTARY SW
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84

MAIN II VOLTAGE CHART

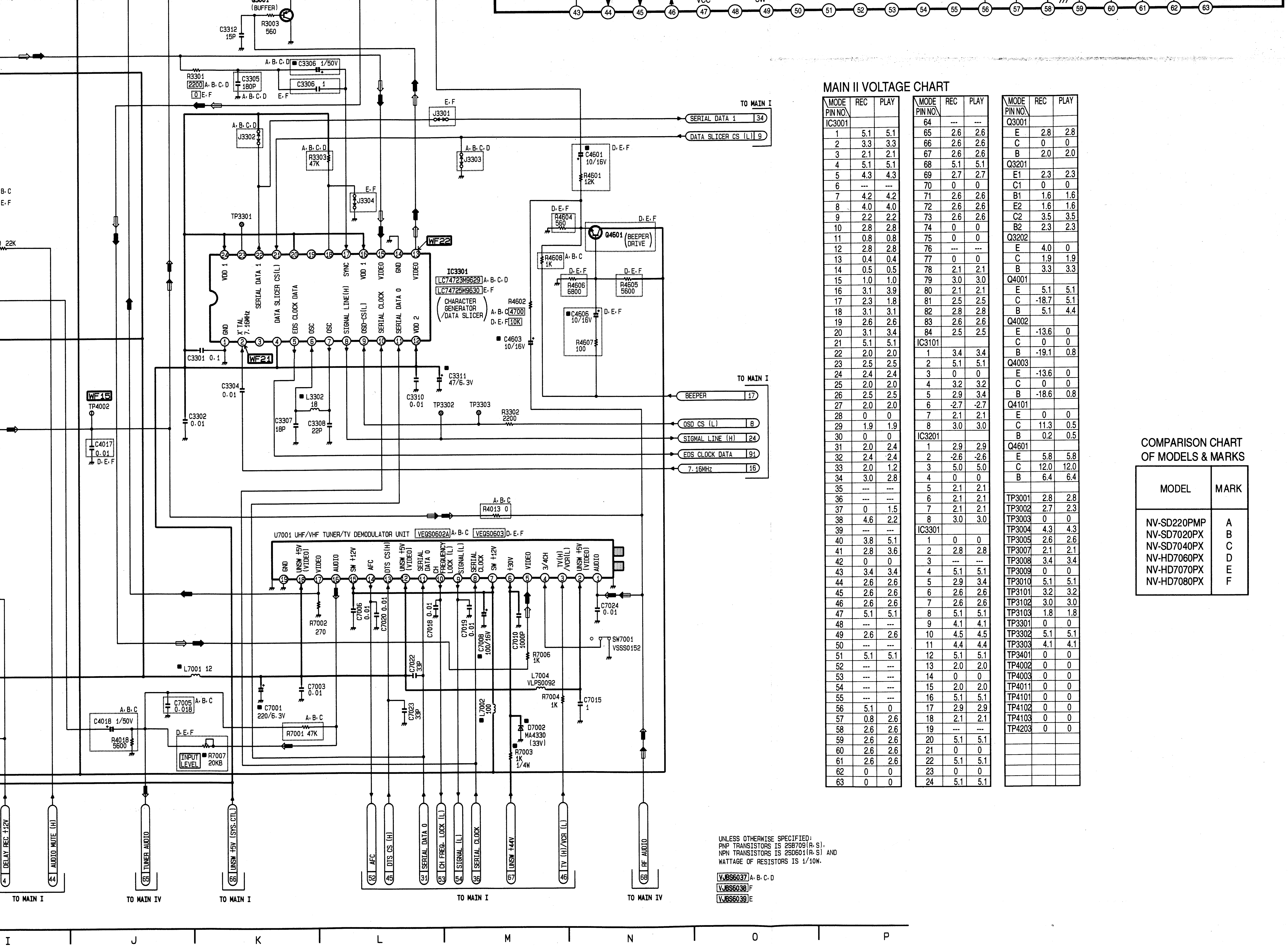
MODE / PIN NO.	REC	PLAY
IC3001		
1	5.1	5.1
2	3.3	3.3
3	2.1	2.1
4	5.1	5.1
5	4.3	4.3
6	---	---
7	4.2	4.2
8	4.0	4.0
9	2.2	2.2
10	2.8	2.8
11	0.8	0.8
12	2.8	2.8

MODE / PIN NO.	REC	PLAY
64	---	---
65	2.6	2.6
66	2.6	2.6
67	2.6	2.6
68	5.1	5.1
69	2.7	2.7
70	0	0
71	2.6	2.6
72	2.6	2.6
73	2.6	2.6
74	0	0
75	0	0
76		

MODE / PIN NO.	REC	PLAY
Q3001		
E	2.8	2.8
C	0	0
B	2.0	2.0
Q3201		
E1	2.3	2.3
C1	0	0
B1	1.6	1.6
E2	1.6	1.6
C2	3.5	3.5
B2	2.3	2.3
Q3202		
E	4.0	0



TO MAIN I
87 VIDEO 2
26 VIDEO 2
IC3001
AN3475FBP
(VIDEO/AUDIO PROCESS)
VCC
GCA DET
AGC DET
TUNER
LINE 2
LINE 1
COLOR KILLER DET
ACC DET
I2C CONTROL
CNR VCC
GCA DET
V REG
CLAMP
Y/C MIX
REC
PB
SYNC SEPARATION
GND
YNR
MAIN EMPH.
REC/PB CHROMINANCE SIGNAL PROCESS
REC/PB LUMINANCE SIGNAL PROCESS
MAIN DE-EMPH
ATENVELOPE DETECTER
RF AGC DET
APC LPF
VXO
SIDE LOCK DET
FSS OUT
AFC
AUDIO MUTE (H)
1/2 VCC
AGC DET
LINE
LINE AMP
LP/SLP-ON
REC AMP
REC-ON
REC-OFF
PB AMP
SP/LP-ON
SLP-ON
Q4001
2SB709A(Q,R,S)
(AUDIO DELAY REC ON-OFF)
Q4002
2SD601A(R,S)
(AUDIO DELAY REC ON-OFF)
Q4003
2SD601A(R,S)
(AUDIO DELAY REC ON-OFF)
T4101
EIQ7QF018Q
Q4101
(BIAS OSC)
X3010
VSXS0195
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF9
WF10
WF11
WF12
WF13
WF14
WF15
WF16
WF17
WF18
WF20
WF21
TP3001
TP3002
TP3003
TP3004
TP3005
TP3007
TP3008
TP3010
TP4002
TP4003
TP4011
TP4101
TP4102
TP4103
TO MAIN I
5 Hi-Fi DELAY REC(H)
TO MAIN IV
85 REC AUDIO
61 PB AUDIO
62 Hi-Fi HEAD SW
TO MAIN I
63 UNSW +5V (VIDEO)
64 UNSW +14V
29 CYL PG/FG
28 CYL ERROR
43 PB (L)
60 SW +12V
33 HEAD SW
42 CUE/REV/SS (L)
49 HEAD AMP SW
48 ENVELOPE DET
J3870
P3001
TO HEAD AMP
P3501-15 ENVELOPE DET
P3501-14 HEAD AMP SW
P3501-13 CUE/REV/SS (L)
P3501-10 DELAY REC +12V
P3501-11 REC/PB VIDEO
P3501-7 HEAD SW
P3501-8 GND
P3501-9 SW +12V
P3501-12 PB (L)
P3501-5 GND
P3501-3 CYL ERROR
P3501-2 UNSW +5V (SYS.CTL)
P3501-1 CYL PG/FG
P3501-6 GND
P3501-4 UNSW +14V
P3501-16 UNSW +5V (VIDEO)
P3501-20 Hi-Fi HEAD SW
P3501-17 PB AUDIO
P3501-19 REC AUDIO
P3501-18 Hi-Fi DELAY REC (H)
C,D,E,F
D,E,F
51 ENVELOPE VOLTAGE
50 ROTARY SW
TO MAIN I
56 AUDIO HEAD
59 AUDIO HEAD
TO MAIN I
P4001
FULL ERASE HEAD UNIT
GND
FULL ERASE HEAD
57 AUDIO ERASE HEAD
58 AUDIO ERASE HEAD
TO MAIN I
4 DELAY REC +12V
44 AUDIO MUTE (H)
TO MAIN I
65 TUNER AUDIO
TO MAIN IV
66 UNSW +5V (SYS.CTL)
TO MAIN I
VDD 1
SERIAL DATA 1
DATA SLICER CS(L)
EDS CLOCK DATA
GND
X'TAL 7.16MHz
DATA OUTPUT
OSC
U7001 UHF/VHF
INPUT LEVEL
R7007 20KB
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7


(BUFFER)
C3312 15P
R3003 560
R3301 2200 A, B, C, D
0 E, F
C3305 180P A, B, C, D
A, B, C, D C3306 1/50V
C3306 1 E, F
J3301 E, F
J3302 A, B, C, D
R3303 47K A, B, C, D
J3303 A, B, C, D
J3304 E, F
TP3301
C4601 10/16V D, E, F
R4601 12K
R4604 560 D, E, F
Q4601 (BEEPER DRIVE) D, E, F
R4608 1K A, B, C
R4606 6800 D, E, F
R4605 5600 D, E, F
R4602 A, B, C 4700 D, E, F 10K
C4606 10/16V D, E, F
R4607 100
C4603 10/16V
WF22
WF21
WF15
IC3301
LC74723M9629 A, B, C, D
LC74725M9630 E, F
(CHARACTER GENERATOR /DATA SLICER)
VDD 1
SERIAL DATA 1
DATA SLICER CS(L)
EDS CLOCK DATA
SYNC
VIDEO
GND
X'TAL 7.16MHz
OSC
SIGNAL LINE(H)
OSD-CS(L)
SERIAL CLOCK
SERIAL DATA 0
VDD 2
C3301 0.1
C3304 0.01
C3302 0.01
L3302 18
C3307 18P
C3308 22P
C3310 0.01
C3311 47/6.3V
TP3302
TP3303
R3302 2200
TP4002
C4017 0.01 D, E, F
TO MAIN I
SERIAL DATA 1 34
DATA SLICER CS (L) 9
BEEPER 17
OSD CS (L) 8
SIGNAL LINE (H) 24
EDS CLOCK DATA 91
7.16MHz 16
R4013 0 A, B, C
U7001 UHF/VHF TUNER/TV DEMODULATOR UNIT VEQS0602A A, B, C VEQS0603 D, E, F
GND
UNSW +5V (VIDEO)
VIDEO
AUDIO
SW +12V
AFC
DTS CS(H)
SERIAL DATA 0
CH FREQUENCY LOCK (L)
SIGNAL (L)
SERIAL CLOCK
SW +12V
+30V
3/4CH
TV(H) /VCR(L)
C7024 0.01
R7002 270
C7006 0.01
C7020 0.01
C7018 0.01
C7019 0.01
C7008 100/16V
C7010 1000P
SW7001 VSSS0152
R7006 1K
L7001 12
C7003 0.01
C7022 33P
L7004 VLPS0092
R7004 1K
C7015 1
C7005 0.018 A, B, C
C4018 1/50V A, B, C
R4018 5600
C7001 220/6.3V
R7001 47K A, B, C
D, E, F
INPUT LEVEL
R7007 20KB
C7023 33P
L7002 100
D7002 MA4330 (33V)
R7003 1K 1/4W
DELAY REC +12V 4
AUDIO MUTE (H) 44
TUNER AUDIO 65
UNSW +5V (SYS.CTL) 66
AFC 52
DTS CS (H) 45
SERIAL DATA 0 31
CH FREQ. LOCK (L) 53
SIGNAL (L) 54
SERIAL CLOCK 36
UNSW +44V 67
TV (H)/VCR (L) 46
RF AUDIO 68
TO MAIN IV
VCC
SW
I
J
K
L
M
N
O
P

UNLESS OTHERWISE SPECIFIED:
PNP TRANSISTORS IS 2SB709(R, S),
NPN TRANSISTORS IS 2SD601(R, S) AND
WATTAGE OF RESISTORS IS 1/10W.

VJBS6037 A, B, C, D
VJBS6038 F
VJBS6039 E

MAIN II VOLTAGE CHART

MODE / PIN NO.	REC	PLAY
IC3001		
1	5.1	5.1
2	3.3	3.3
3	2.1	2.1
4	5.1	5.1
5	4.3	4.3
6	---	---
7	4.2	4.2
8	4.0	4.0
9	2.2	2.2
10	2.8	2.8
11	0.8	0.8
12	2.8	2.8
13	0.4	0.4
14	0.5	0.5
15	1.0	1.0
16	3.1	3.9
17	2.3	1.8
18	3.1	3.1
19	2.6	2.6
20	3.1	3.4
21	5.1	5.1
22	2.0	2.0
23	2.5	2.5
24	2.4	2.4
25	2.0	2.0
26	2.5	2.5
27	2.0	2.0
28	0	0
29	1.9	1.9
30	0	0
31	2.0	2.4
32	2.4	2.4
33	2.0	1.2
34	3.0	2.8
35	---	---
36	---	---
37	0	1.5
38	4.6	2.2
39	---	---
40	3.8	5.1
41	2.8	3.6
42	0	0
43	3.4	3.4
44	2.6	2.6
45	2.6	2.6
46	2.6	2.6
47	5.1	5.1
48	---	---
49	2.6	2.6
50	---	---
51	5.1	5.1
52	---	---
53	---	---
54	---	---
55	---	---
56	5.1	0
57	0.8	2.6
58	2.6	2.6
59	2.6	2.6
60	2.6	2.6
61	2.6	2.6
62	0	0
63	0	0

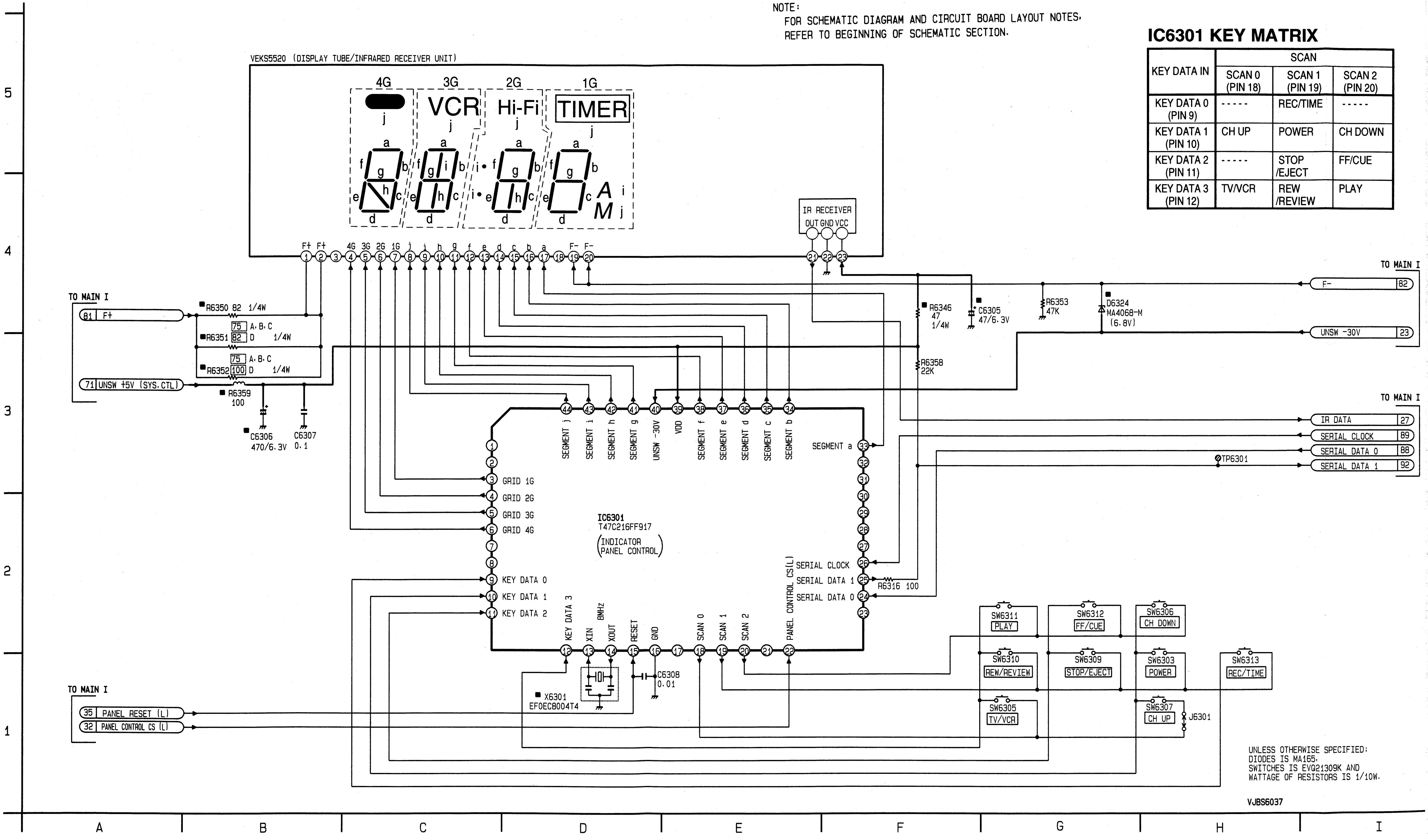
MODE / PIN NO.	REC	PLAY
64	---	---
65	2.6	2.6
66	2.6	2.6
67	2.6	2.6
68	5.1	5.1
69	2.7	2.7
70	0	0
71	2.6	2.6
72	2.6	2.6
73	2.6	2.6
74	0	0
75	0	0
76	---	---
77	0	0
78	2.1	2.1
79	3.0	3.0
80	2.1	2.1
81	2.5	2.5
82	2.8	2.8
83	2.6	2.6
84	2.5	2.5
IC3101		
1	3.4	3.4
2	5.1	5.1
3	0	0
4	3.2	3.2
5	2.9	3.4
6	-2.7	-2.7
7	2.1	2.1
8	3.0	3.0
IC3201		
1	2.9	2.9
2	-2.6	-2.6
3	5.0	5.0
4	0	0
5	2.1	2.1
6	2.1	2.1
7	2.1	2.1
8	3.0	3.0
IC3301		
1	0	0
2	2.8	2.8
3	---	---
4	5.1	5.1
5	2.9	3.4
6	2.6	2.6
7	2.6	2.6
8	5.1	5.1
9	4.1	4.1
10	4.5	4.5
11	4.4	4.4
12	5.1	5.1
13	2.0	2.0
14	0	0
15	2.0	2.0
16	5.1	5.1
17	2.9	2.9
18	2.1	2.1
19	---	---
20	5.1	5.1
21	0	0
22	5.1	5.1
23	0	0
24	5.1	5.1

MODE / PIN NO.	REC	PLAY
Q3001		
E	2.8	2.8
C	0	0
B	2.0	2.0
Q3201		
E1	2.3	2.3
C1	0	0
B1	1.6	1.6
E2	1.6	1.6
C2	3.5	3.5
B2	2.3	2.3
Q3202		
E	4.0	0
C	1.9	1.9
B	3.3	3.3
Q4001		
E	5.1	5.1
C	-18.7	5.1
B	5.1	4.4
Q4002		
E	-13.6	0
C	0	0
B	-19.1	0.8
Q4003		
E	-13.6	0
C	0	0
B	-18.6	0.8
Q4101		
E	0	0
C	11.3	0.5
B	0.2	0.5
Q4601		
E	5.8	5.8
C	12.0	12.0
B	6.4	6.4
TP3001	2.8	2.8
TP3002	2.7	2.3
TP3003	0	0
TP3004	4.3	4.3
TP3005	2.6	2.6
TP3007	2.1	2.1
TP3008	3.4	3.4
TP3009	0	0
TP3010	5.1	5.1
TP3101	3.2	3.2
TP3102	3.0	3.0
TP3103	1.8	1.8
TP3301	0	0
TP3302	5.1	5.1
TP3303	4.1	4.1
TP3401	0	0
TP4002	0	0
TP4003	0	0
TP4011	0	0
TP4101	0	0
TP4102	0	0
TP4103	0	0
TP4203	0	0

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

MAIN III (OPERATION) SCHEMATIC DIAGRAM (A,B,C,D)


VEKS5520 (DISPLAY TUBE/INFRARED RECEIVER UNIT)
4G
3G
2G
1G
VCR
Hi-Fi
TIMER
A
M
F+ F+ 4G 3G 2G 1G j i h g f e d c b a F- F-
IR RECEIVER
OUT GND VCC
TO MAIN I
81 F+
71 UNSW +5V (SYS.CTL)
R6350 82 1/4W
R6351 75 A,B,C 82 D 1/4W
R6352 75 A,B,C 100 D 1/4W
R6359 100
C6306 470/6.3V
C6307 0.1
R6346 47 1/4W
C6305 47/6.3V
R6353 47K
D6324 MA4068-M (6.8V)
R6358 22K
TO MAIN I
F- 82
UNSW -30V 23
TO MAIN I
IR DATA 27
SERIAL CLOCK 89
SERIAL DATA 0 88
SERIAL DATA 1 92
TP6301
SEGMENT j
SEGMENT i
SEGMENT h
SEGMENT g
UNSW -30V
VDD
SEGMENT f
SEGMENT e
SEGMENT d
SEGMENT c
SEGMENT b
SEGMENT a
GRID 1G
GRID 2G
GRID 3G
GRID 4G
IC6301
T47C216FF917
(INDICATOR PANEL CONTROL)
KEY DATA 0
KEY DATA 1
KEY DATA 2
KEY DATA 3
XIN
8MHz
XOUT
RESET
GND
SCAN 0
SCAN 1
SCAN 2
PANEL CONTROL CS(L)
SERIAL CLOCK
SERIAL DATA 1
SERIAL DATA 0
R6316 100
X6301 EF0EC8004T4
C6308 0.01
SW6311 PLAY
SW6312 FF/CUE
SW6306 CH DOWN
SW6310 REW/REVIEW
SW6309 STOP/EJECT
SW6303 POWER
SW6313 REC/TIME
SW6305 TV/VCR
SW6307 CH UP
J6301
TO MAIN I
35 PANEL RESET (L)
32 PANEL CONTROL CS (L)
A B C D E F G H I
1 2 3 4 5

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IC6301 KEY MATRIX

KEY DATA IN	SCAN		
	SCAN 0 (PIN 18)	SCAN 1 (PIN 19)	SCAN 2 (PIN 20)
KEY DATA 0 (PIN 9)	-----	REC/TIME	-----
KEY DATA 1 (PIN 10)	CH UP	POWER	CH DOWN
KEY DATA 2 (PIN 11)	-----	STOP /EJECT	FF/CUE
KEY DATA 3 (PIN 12)	TV/VCR	REW /REVIEW	PLAY

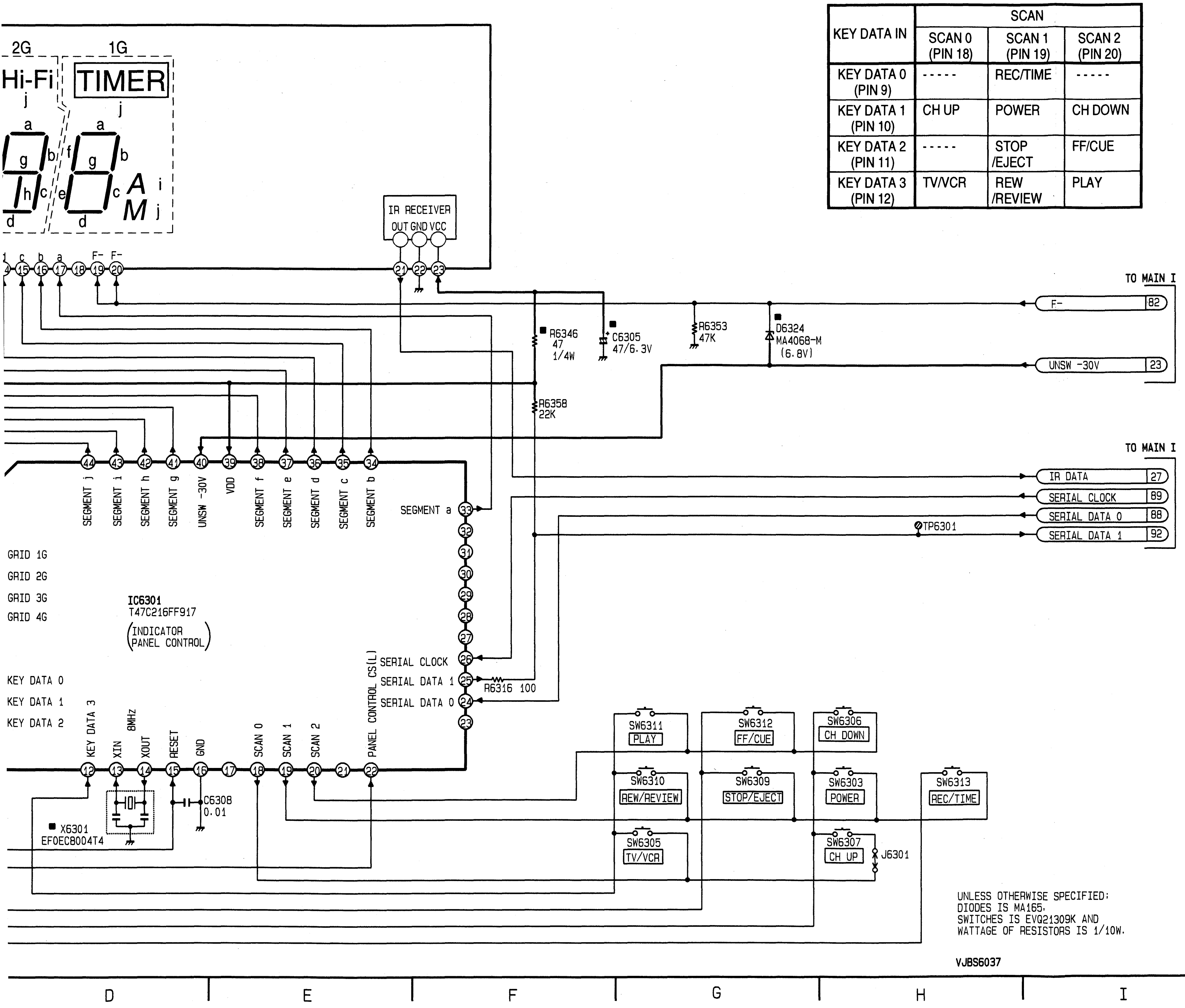
UNLESS OTHERWISE SPECIFIED:
DIODES IS MA165,
SWITCHES IS EVQ21309K AND
WATTAGE OF RESISTORS IS 1/10W.

VJBS6037

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IC6301 KEY MATRIX

KEY DATA IN	SCAN		
	SCAN 0 (PIN 18)	SCAN 1 (PIN 19)	SCAN 2 (PIN 20)
KEY DATA 0 (PIN 9)	-----	REC/TIME	-----
KEY DATA 1 (PIN 10)	CH UP	POWER	CH DOWN
KEY DATA 2 (PIN 11)	-----	STOP /EJECT	FF/CUE
KEY DATA 3 (PIN 12)	TV/VCR	REW /REVIEW	PLAY


2G
1G
Hi-Fi
TIMER
a
b
c
d
e
f
g
h
i
j
A
M
1 c b a F- F-
IR RECEIVER
OUT GND VCC
TO MAIN I
F-
82
UNSW -30V
23
R6346
47
1/4W
C6305
47/6.3V
R6353
47K
D6324
MA4068-M
(6.8V)
R6358
22K
TO MAIN I
IR DATA
27
SERIAL CLOCK
89
SERIAL DATA 0
88
SERIAL DATA 1
92
TP6301
SEGMENT j
SEGMENT i
SEGMENT h
SEGMENT g
UNSW -30V
VDD
SEGMENT f
SEGMENT e
SEGMENT d
SEGMENT c
SEGMENT b
SEGMENT a
GRID 1G
GRID 2G
GRID 3G
GRID 4G
IC6301
T47C216FF917
(INDICATOR PANEL CONTROL)
SERIAL CLOCK
SERIAL DATA 1
SERIAL DATA 0
R6316 100
PANEL CONTROL CS(L)
KEY DATA 0
KEY DATA 1
KEY DATA 2
KEY DATA 3
XIN
8MHz
XOUT
RESET
GND
SCAN 0
SCAN 1
SCAN 2
C6308
0.01
X6301
EF0EC8004T4
SW6311
PLAY
SW6312
FF/CUE
SW6306
CH DOWN
SW6310
REW/REVIEW
SW6309
STOP/EJECT
SW6303
POWER
SW6313
REC/TIME
SW6305
TV/VCR
SW6307
CH UP
J6301
D
E
F
G
H
I
J

UNLESS OTHERWISE SPECIFIED:
DIODES IS MA165.
SWITCHES IS EVQ21309K AND
WATTAGE OF RESISTORS IS 1/10W.

VJBS6037

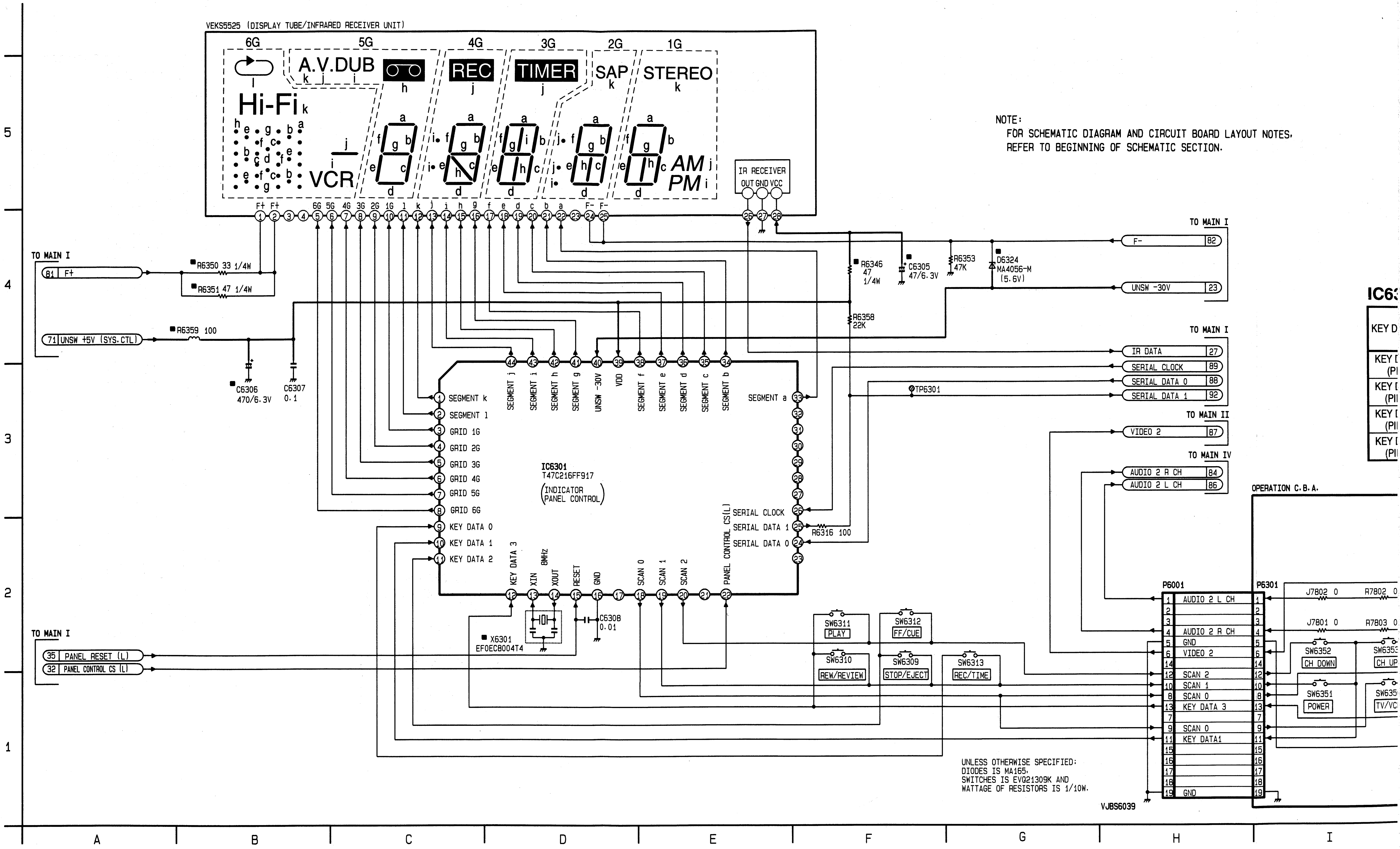
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

MAIN III VOLTAGE CHART

MODE / PIN NO.	REC	PLAY
IC6301		
1	---	---
2	---	---
3	-26.5	-26.5
4	-26.5	-26.5
5	-26.5	-26.5
6	-26.5	-26.5
7	---	---
8	---	---
9	5.2	5.2
10	5.2	5.2
11	5.2	5.2
12	5.2	5.2
13	2.3	2.3
14	2.6	2.5
15	5.1	5.1
16	0	0
17	---	---
18	2.0	1.9
19	2.0	1.8
20	2.1	2.1
21	---	---
22	1.3	1.3
23	---	---
24	0	4.7
25	5.1	5.2
26	4.7	4.7
27	---	---
28	---	---
29	---	---
30	---	---
31	---	---
32	---	---
33	-18.0	-21.9
34	-26.3	-18.0
35	-30.5	-21.7
36	-21.8	-21.6
37	-17.5	-17.5
38	-17.5	-13.5
39	5.2	5.2
40	-31.0	-31.0
41	-21.7	-17.2
42	-26.1	-30.5
43	-26.0	-30.5
44	-21.7	-30.5
TP6301	5.2	5.2

MAIN III (OPERATION) & OPERATION SCHEMATIC DIAGRAM (E)

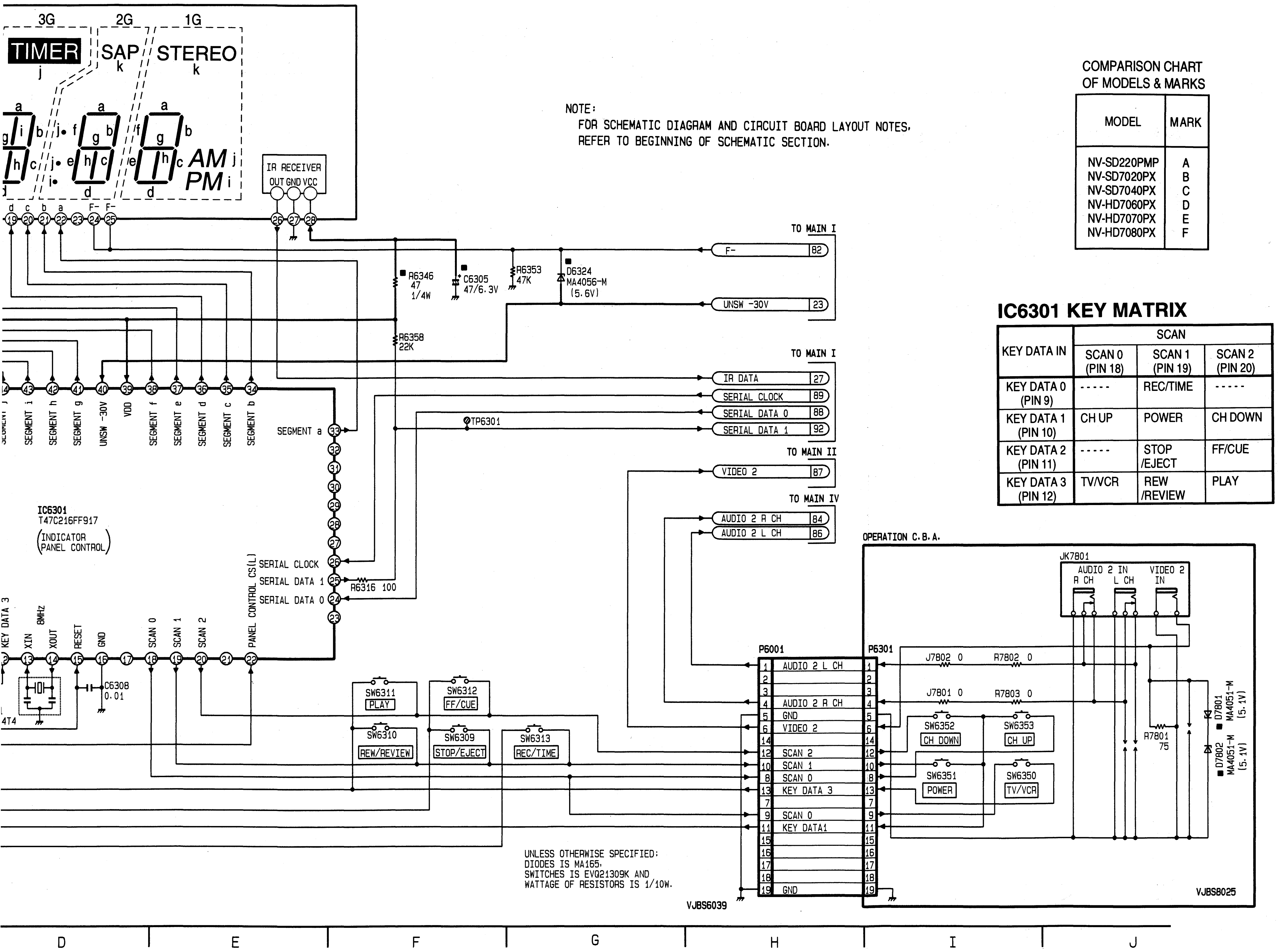


VEKS5525 (DISPLAY TUBE/INFRARED RECEIVER UNIT)
6G
5G
4G
3G
2G
1G
A.V.DUB
REC
TIMER
SAP
STEREO
Hi-Fi
VCR
AM
PM
IR RECEIVER
OUT GND VCC
F+ F+ 6G 5G 4G 3G 2G 1G l k j i h g f e d c b a F- F-
TO MAIN I
81 F+
R6350 33 1/4W
R6351 47 1/4W
71 UNSW +5V (SYS. CTL)
R6359 100
C6306 470/6.3V
C6307 0.1
R6346 47 1/4W
C6305 47/6.3V
R6353 47K
D6324 MA4056-M (5.6V)
R6358 22K
F- 82
UNSW -30V 23
TO MAIN I
IR DATA 27
SERIAL CLOCK 89
SERIAL DATA 0 88
SERIAL DATA 1 92
TP6301
TO MAIN II
VIDEO 2 87
TO MAIN IV
AUDIO 2 R CH 84
AUDIO 2 L CH 86
SEGMENT j
SEGMENT i
SEGMENT h
SEGMENT g
UNSW -30V
VDD
SEGMENT f
SEGMENT e
SEGMENT d
SEGMENT c
SEGMENT b
SEGMENT a
SEGMENT k
SEGMENT l
GRID 1G
GRID 2G
GRID 3G
GRID 4G
GRID 5G
GRID 6G
KEY DATA 0
KEY DATA 1
KEY DATA 2
IC6301
T47C216FF917
(INDICATOR PANEL CONTROL)
SERIAL CLOCK
SERIAL DATA 1
SERIAL DATA 0
PANEL CONTROL CS(L)
R6316 100
KEY DATA 3
XIN
8MHz
XOUT
RESET
GND
SCAN 0
SCAN 1
SCAN 2
C6308 0.01
X6301 EF0EC8004T4
TO MAIN I
35 PANEL RESET (L)
32 PANEL CONTROL CS (L)
SW6311 PLAY
SW6312 FF/CUE
SW6310 REW/REVIEW
SW6309 STOP/EJECT
SW6313 REC/TIME
OPERATION C.B.A.
P6001
P6301
1 AUDIO 2 L CH
2
3
4 AUDIO 2 R CH
5 GND
6 VIDEO 2
14
12 SCAN 2
10 SCAN 1
8 SCAN 0
13 KEY DATA 3
7
9 SCAN 0
11 KEY DATA1
15
16
17
18
19 GND
VJBS6039
J7802 0
R7802 0
J7801 0
R7803 0
SW6352 CH DOWN
SW6353 CH UP
SW6351 POWER
SW635 TV/VC
IC63
KEY D
KEY D (PI
KEY D (PI
KEY D (PI
KEY D (PI
5
4
3
2
1
A
B
C
D
E
F
G
H
I

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

UNLESS OTHERWISE SPECIFIED:
DIODES IS MA165,
SWITCHES IS EVQ21309K AND
WATTAGE OF RESISTORS IS 1/10W.

(E)


3G
2G
1G
TIMER
SAP
STEREO
AM
PM
IR RECEIVER
OUT GND VCC
TO MAIN I
F-
82
UNSW -30V
23
R6346 47 1/4W
C6305 47/6.3V
R6353 47K
D6324 MA4056-M (5.6V)
R6358 22K
TO MAIN I
IR DATA
27
SERIAL CLOCK
89
SERIAL DATA 0
88
SERIAL DATA 1
92
TP6301
TO MAIN II
VIDEO 2
87
TO MAIN IV
AUDIO 2 R CH
84
AUDIO 2 L CH
86
SEGMENT i
SEGMENT h
SEGMENT g
UNSW -30V
VDD
SEGMENT f
SEGMENT e
SEGMENT d
SEGMENT c
SEGMENT b
SEGMENT a
IC6301
T47C216FF917
(INDICATOR PANEL CONTROL)
SERIAL CLOCK
SERIAL DATA 1
SERIAL DATA 0
PANEL CONTROL CS(L)
R6316 100
KEY DATA 3
XIN
8MHz
XOUT
RESET
GND
SCAN 0
SCAN 1
SCAN 2
C6308 0.01
SW6311 PLAY
SW6312 FF/CUE
SW6310 REW/REVIEW
SW6309 STOP/EJECT
SW6313 REC/TIME
P6001
AUDIO 2 L CH
AUDIO 2 R CH
GND
VIDEO 2
SCAN 2
SCAN 1
SCAN 0
KEY DATA 3
SCAN 0
KEY DATA1
GND
VJBS6039
P6301
OPERATION C.B.A.
JK7801
AUDIO 2 IN R CH L CH
VIDEO 2 IN
J7802 0
R7802 0
J7801 0
R7803 0
SW6352 CH DOWN
SW6353 CH UP
SW6351 POWER
SW6350 TV/VCR
R7801 75
D7801 MA4051-M (5.1V)
D7802 MA4051-M (5.1V)
VJBS8025
D
E
F
G
H
I
J

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

UNLESS OTHERWISE SPECIFIED:
DIODES IS MA165,
SWITCHES IS EVQ21309K AND
WATTAGE OF RESISTORS IS 1/10W.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

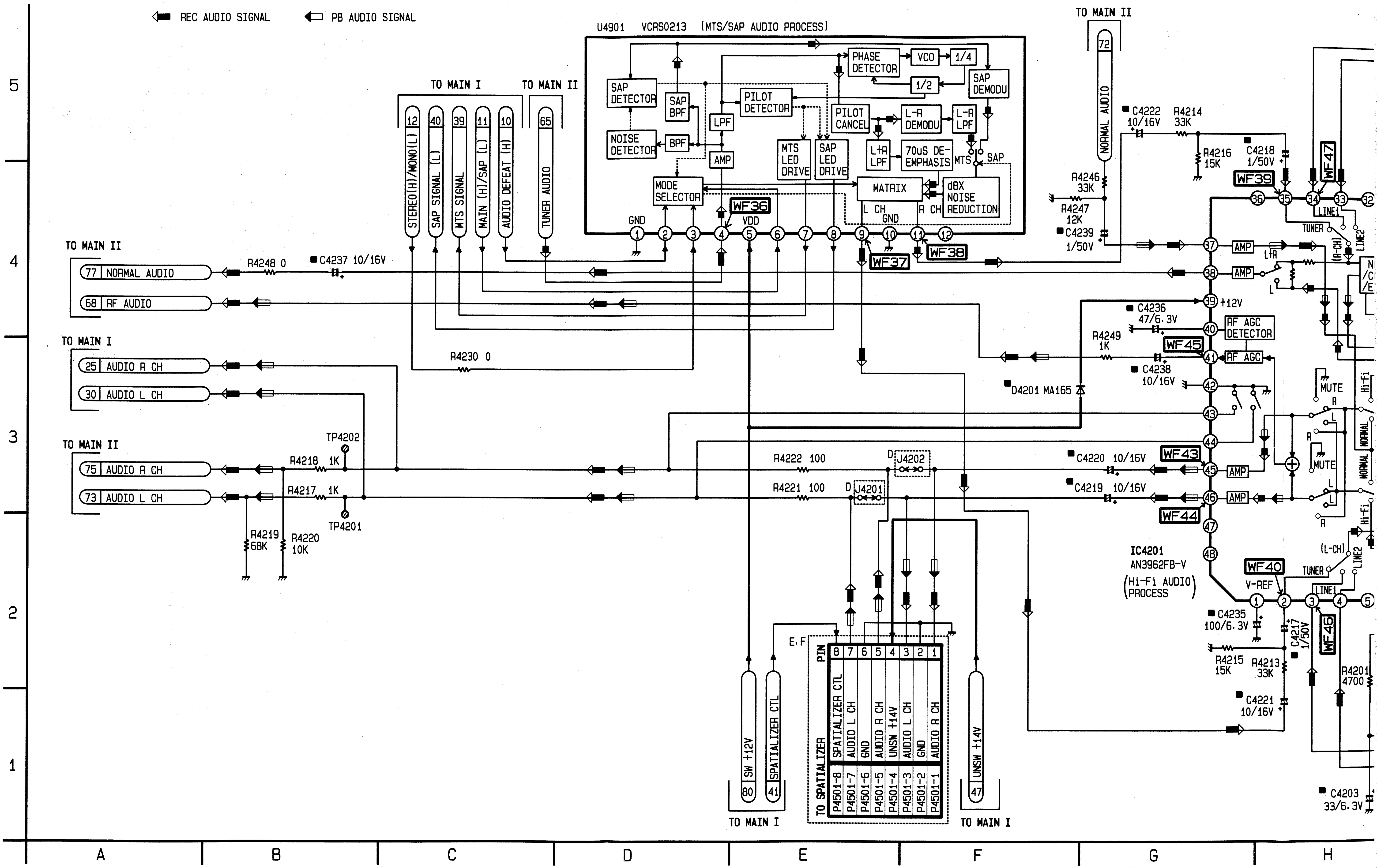
IC6301 KEY MATRIX

KEY DATA IN	SCAN		
	SCAN 0 (PIN 18)	SCAN 1 (PIN 19)	SCAN 2 (PIN 20)
KEY DATA 0 (PIN 9)	-----	REC/TIME	-----
KEY DATA 1 (PIN 10)	CH UP	POWER	CH DOWN
KEY DATA 2 (PIN 11)	-----	STOP /EJECT	FF/CUE
KEY DATA 3 (PIN 12)	TV/VCR	REW /REVIEW	PLAY

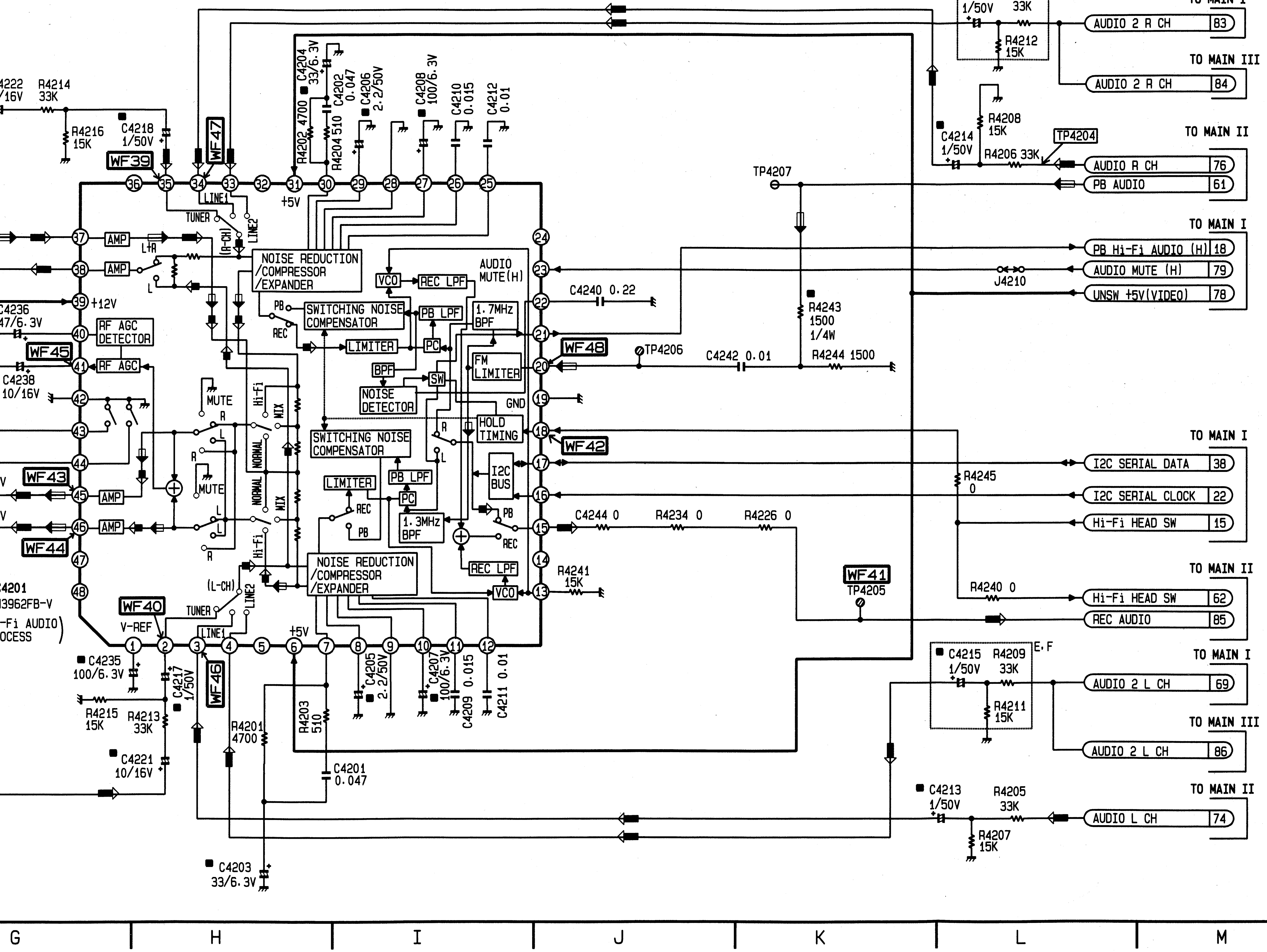
MAIN III VOLTAGE CHART

MODE / PIN NO.	REC	PLAY
IC6301		
1	-26.5	-26.5
2	-26.5	-26.5
3	-26.5	-26.5
4	-26.5	-26.5
5	-26.5	-26.5
6	-26.5	-26.5
7	-26.5	-26.5
8	-26.5	-26.5
9	5.2	5.2
10	5.2	5.2
11	5.2	5.2
12	5.2	5.2
13	2.3	2.3
14	2.6	2.5
15	5.1	5.1
16	0	0
17	---	---
18	2.0	1.9
19	2.0	1.8
20	2.1	2.1
21	---	---
22	1.3	1.3
23	---	---
24	0	4.7
25	5.1	5.2
26	4.7	4.7
27	---	---
28	---	---
29	---	---
30	---	---
31	---	---
32	---	---
33	-18.0	-21.9
34	-26.3	-18.0
35	-30.5	-21.7
36	-21.8	-21.6
37	-17.5	-17.5
38	-17.5	-13.5
39	5.2	5.2
40	-31.0	-31.0
41	-21.7	-17.2
42	-26.1	-30.5
43	-26.0	-30.5
44	-21.7	-30.5
TP6301	5.2	5.2

MAIN IV (Hi-Fi AUDIO) SCHEMATIC DIAGRAM (D,E,F)


REC AUDIO SIGNAL
PB AUDIO SIGNAL
U4901 VCRS0213 (MTS/SAP AUDIO PROCESS)
SAP DETECTOR
SAP BPF
NOISE DETECTOR
BPF
LPF
AMP
MODE SELECTOR
PILOT DETECTOR
PHASE DETECTOR
VCO
1/4
1/2
SAP DEMODU
PILOT CANCEL
L-R DEMODU
L-R LPF
MTS LED DRIVE
SAP LED DRIVE
L+R LPF
70uS DE-EMPHASIS
MTS
SAP
MATRIX
dBX NOISE REDUCTION
L CH
R CH
GND
VDD
WF36
WF37
WF38
TO MAIN I
TO MAIN II
STEREO(H)/MONO(L)
SAP SIGNAL (L)
MTS SIGNAL
MAIN (H)/SAP (L)
AUDIO DEFEAT (H)
TUNER AUDIO
12
40
39
11
10
65
77 NORMAL AUDIO
68 RF AUDIO
R4248 0
C4237 10/16V
25 AUDIO R CH
30 AUDIO L CH
R4230 0
75 AUDIO R CH
73 AUDIO L CH
TP4202
TP4201
R4218 1K
R4217 1K
R4219 68K
R4220 10K
R4222 100
R4221 100
J4202
J4201
SW +12V
SPATIALIZER CTL
80
41
E, F
PIN
TO SPATIALIZER
P4501-8 SPATIALIZER CTL
P4501-7 AUDIO L CH
P4501-6 GND
P4501-5 AUDIO R CH
P4501-4 UNSW +14V
P4501-3 AUDIO L CH
P4501-2 GND
P4501-1 AUDIO R CH
UNSW +14V
47
72 NORMAL AUDIO
C4222 10/16V
R4214 33K
R4216 15K
C4218 1/50V
R4246 33K
R4247 12K
C4239 1/50V
WF39
WF47
LINE1
LINE2
TUNER
L+R
(R-CH)
AMP
+12V
C4236 47/6.3V
RF AGC DETECTOR
RF AGC
R4249 1K
WF45
C4238 10/16V
D4201 MA165
MUTE
C4220 10/16V
C4219 10/16V
WF43
WF44
IC4201 AN3962FB-V (Hi-Fi AUDIO PROCESS)
WF40
V-REF
(L-CH)
C4235 100/6.3V
C4217 1/50V
WF46
R4215 15K
R4213 33K
C4221 10/16V
R4201 4700
C4203 33/6.3V
NORMAL
Hi-Fi
A
B
C
D
E
F
G
H
1
2
3
4
5

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



TO MAIN I
AUDIO 2 R CH 83
TO MAIN III
AUDIO 2 R CH 84
TO MAIN II
AUDIO R CH 76
PB AUDIO 61
TO MAIN I
PB Hi-Fi AUDIO (H) 18
AUDIO MUTE (H) 79
UNSW +5V(VIDEO) 78
TO MAIN I
I2C SERIAL DATA 38
I2C SERIAL CLOCK 22
Hi-Fi HEAD SW 15
TO MAIN II
Hi-Fi HEAD SW 62
REC AUDIO 85
TO MAIN I
AUDIO 2 L CH 69
TO MAIN III
AUDIO 2 L CH 86
TO MAIN II
AUDIO L CH 74
C4216 1/50V
R4210 33K
E, F
R4212 15K
R4208 15K
C4214 1/50V
R4206 33K
TP4204
TP4207
J4210
R4243 1500 1/4W
C4240 0.22
TP4206
C4242 0.01
R4244 1500
C4244 0
R4234 0
R4226 0
R4245 0
R4240 0
WF41
TP4205
R4241 15K
C4215 1/50V
R4209 33K
R4211 15K
C4213 1/50V
R4205 33K
R4207 15K
C4201 0.047
C4203 33/6.3V
R4201 4700
R4203 510
C4205 2.2/50V
C4207 100/6.3V
C4209 0.015
C4211 0.01
C4204 33/6.3V
C4202 0.047
R4202 4700
R4204 510
C4206 2.2/50V
C4208 100/6.3V
C4210 0.015
C4212 0.01
C4222 16V
R4214 33K
R4216 15K
C4218 1/50V
WF39
WF47
C4236 47/6.3V
WF45
C4238 10/16V
WF43
WF44
IC4201
3962FB-V
Hi-Fi AUDIO PROCESS
WF40
V-REF
C4235 100/6.3V
C4217 1/50V
R4215 15K
R4213 33K
C4221 10/16V
WF46
WF48
WF42
NOISE REDUCTION /COMPRESSOR /EXPANDER
SWITCHING NOISE COMPENSATOR
LIMITER
VCO
REC LPF
PB LPF
PC
1.7MHz BPF
FM LIMITER
BPF
SW
NOISE DETECTOR
HOLD TIMING
I2C BUS
1.3MHz BPF
AUDIO MUTE(H)
GND
AMP
RF AGC DETECTOR
RF AGC
MUTE
Hi-Fi
NORMAL
MIX
TUNER
LINE1
LINE2
(R-CH)
(L-CH)
L+R
+12V
+5V
REC
PB
G
H
I
J
K
L
M
N

3-18

3-19

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

MAIN IV VOLTAGE CHART

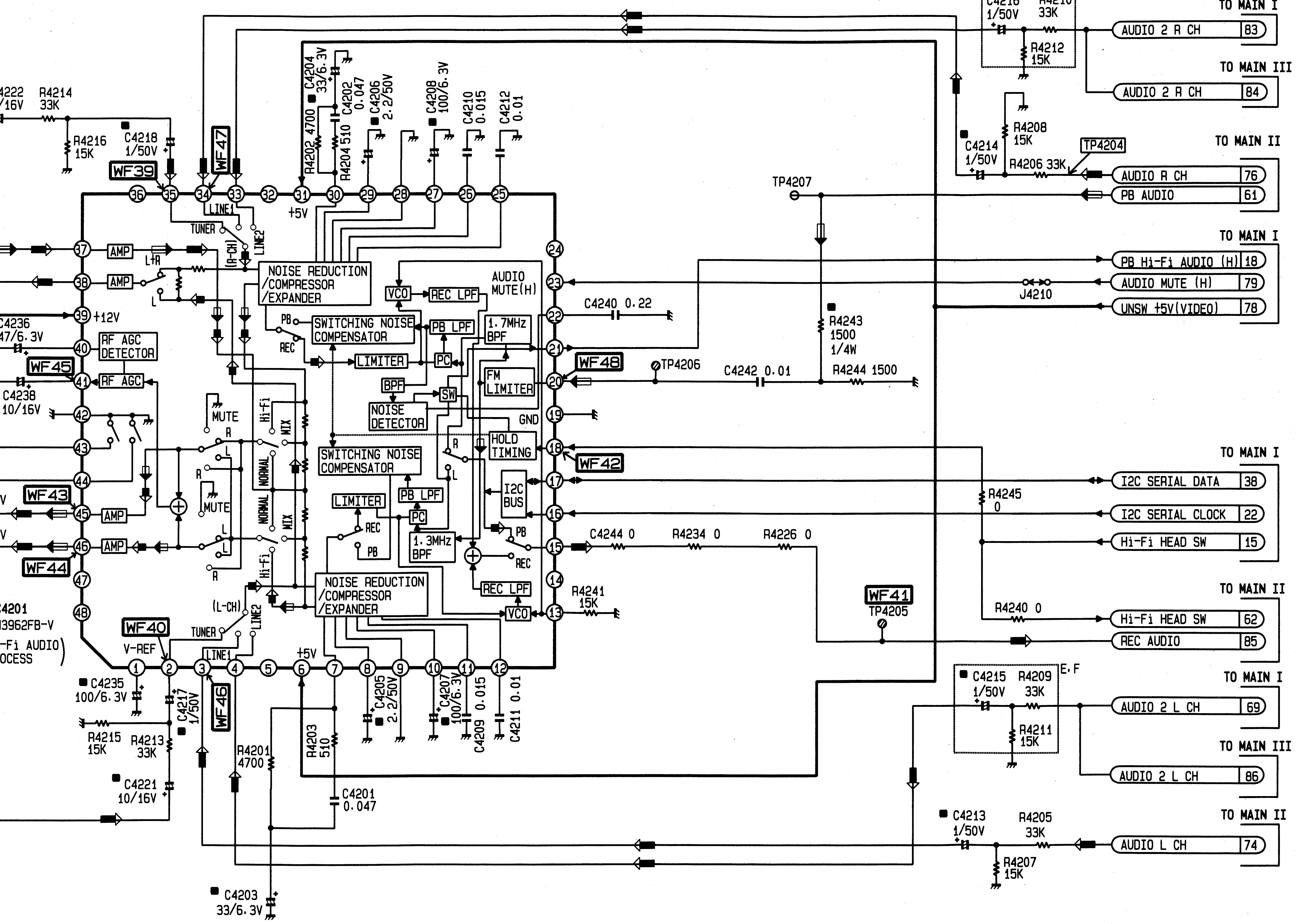
MODE / PIN NO.	REC	PLAY
IC4201		
1	2.6	2.6
2	2.6	2.6
3	2.6	2.6
4	2.6	2.6
5	---	---
6	5.1	5.1
7	2.6	2.6
8	2.6	2.6
9	0	0
10	2.6	2.6
11	2.6	2.6
12	2.6	2.6
13	2.6	2.6
14	---	---
15	2.6	2.6
16	4.2	4.2
17	4.0	4.0
18	2.6	2.6
19	0	0
20	2.6	2.6
21	0	0
22	0	0
23	0	0
24	---	---
25	0	0
26	2.6	2.6
27	2.6	2.6
28	0	0
29	1.6	1.6
30	2.7	2.7
31	0.1	0.1
32	---	---
33	2.6	0

MODE / PIN NO.	REC	PLAY
34	2.6	2.6
35	2.6	2.6
36	---	---
37	2.6	2.6
38	2.6	2.6
39	11.3	11.3
40	0.5	0.5
41	6.2	6.2
42	0	0
43	0	0
44	0	0
45	6.2	6.2
46	6.2	6.2
47	---	---
48	---	---
TP4201	0	0
TP4202	0	0
TP4204	0	0
TP4205	2.7	2.7
TP4206	2.7	2.7
TP4207	0	0

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

VJBS6037 D
VJBS6038 F
VJBS6039 E

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.


C4216 1/50V
R4210 33K
E, F
R4212 15K
TO MAIN I
AUDIO 2 R CH 83
TO MAIN III
AUDIO 2 R CH 84
R4208 15K
C4214 1/50V
R4206 33K
TP4204
TO MAIN II
AUDIO R CH 76
PB AUDIO 61
TP4207
TO MAIN I
PB Hi-Fi AUDIO (H) 18
AUDIO MUTE (H) 79
UNSW +5V(VIDEO) 78
J4210
C4240 0.22
R4243 1500 1/4W
TP4206
C4242 0.01
R4244 1500
WF48
WF42
TO MAIN I
I2C SERIAL DATA 38
I2C SERIAL CLOCK 22
Hi-Fi HEAD SW 15
R4245 0
C4244 0
R4234 0
R4226 0
R4241 15K
WF41
TP4205
R4240 0
TO MAIN II
Hi-Fi HEAD SW 62
REC AUDIO 85
C4215 1/50V
R4209 33K
R4211 15K
TO MAIN I
AUDIO 2 L CH 69
TO MAIN III
AUDIO 2 L CH 86
C4213 1/50V
R4205 33K
R4207 15K
TO MAIN II
AUDIO L CH 74
C4222 /16V
R4214 33K
R4216 15K
C4218 1/50V
WF39
WF47
C4204 33/6.3V
R4202 4700
C4202 0.047
R4204 510
C4206 2.2/50V
C4208 100/6.3V
C4210 0.015
C4212 0.01
+5V
LINE1
TUNER
LINE2
(R-CH)
NOISE REDUCTION /COMPRESSOR /EXPANDER
AUDIO MUTE(H)
VCO
REC LPF
PB
REC
SWITCHING NOISE COMPENSATOR
PB LPF
1.7MHz BPF
LIMITER
PC
FM LIMITER
BPF
SW
NOISE DETECTOR
GND
HOLD TIMING
SWITCHING NOISE COMPENSATOR
I2C BUS
LIMITER
PB LPF
PC
1.3MHz BPF
REC LPF
VCO
NOISE REDUCTION /COMPRESSOR /EXPANDER
AMP
L+R
+12V
C4236 47/6.3V
RF AGC DETECTOR
WF45
RF AGC
C4238 10/16V
MUTE
Hi-Fi
MIX
NORMAL
WF43
WF44
AMP
4201
3962FB-V
-Fi AUDIO
OCESS
WF40
V-REF
(L-CH)
WF46
C4235 100/6.3V
C4217 1/50V
R4215 15K
R4213 33K
C4221 10/16V
R4201 4700
R4203 510
C4201 0.047
C4205 2.2/50V
C4207 100/6.3V
C4209 0.015
C4211 0.01
C4203 33/6.3V

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

MAIN IV VOLTAGE CHART

MODE / PIN NO.	REC	PLAY
IC4201		
1	2.6	2.6
2	2.6	2.6
3	2.6	2.6
4	2.6	2.6
5	---	---
6	5.1	5.1
7	2.6	2.6
8	2.6	2.6
9	0	0
10	2.6	2.6
11	2.6	2.6
12	2.6	2.6
13	2.6	2.6
14	---	---
15	2.6	2.6
16	4.2	4.2
17	4.0	4.0
18	2.6	2.6
19	0	0
20	2.6	2.6
21	0	0
22	0	0
23	0	0
24	---	---
25	0	0
26	2.6	2.6
27	2.6	2.6
28	0	0
29	1.6	1.6
30	2.7	2.7
31	0.1	0.1
32	---	---
33	2.6	0

MODE / PIN NO.	REC	PLAY
34	2.6	2.6
35	2.6	2.6
36	---	---
37	2.6	2.6
38	2.6	2.6
39	11.3	11.3
40	0.5	0.5
41	6.2	6.2
42	0	0
43	0	0
44	0	0
45	6.2	6.2
46	6.2	6.2
47	---	---
48	---	---
TP4201	0	0
TP4202	0	0
TP4204	0	0
TP4205	2.7	2.7
TP4206	2.7	2.7
TP4207	0	0

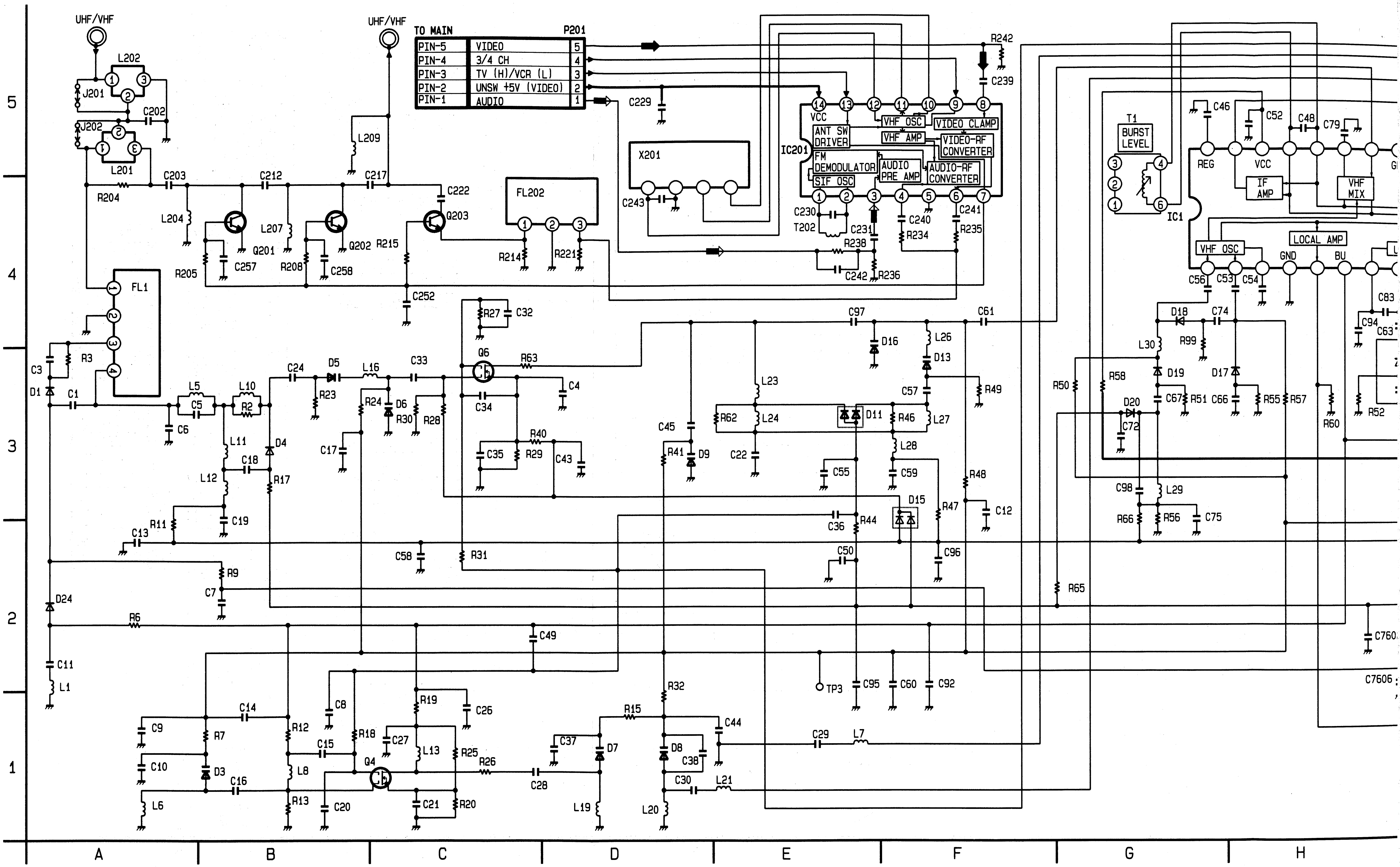
UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

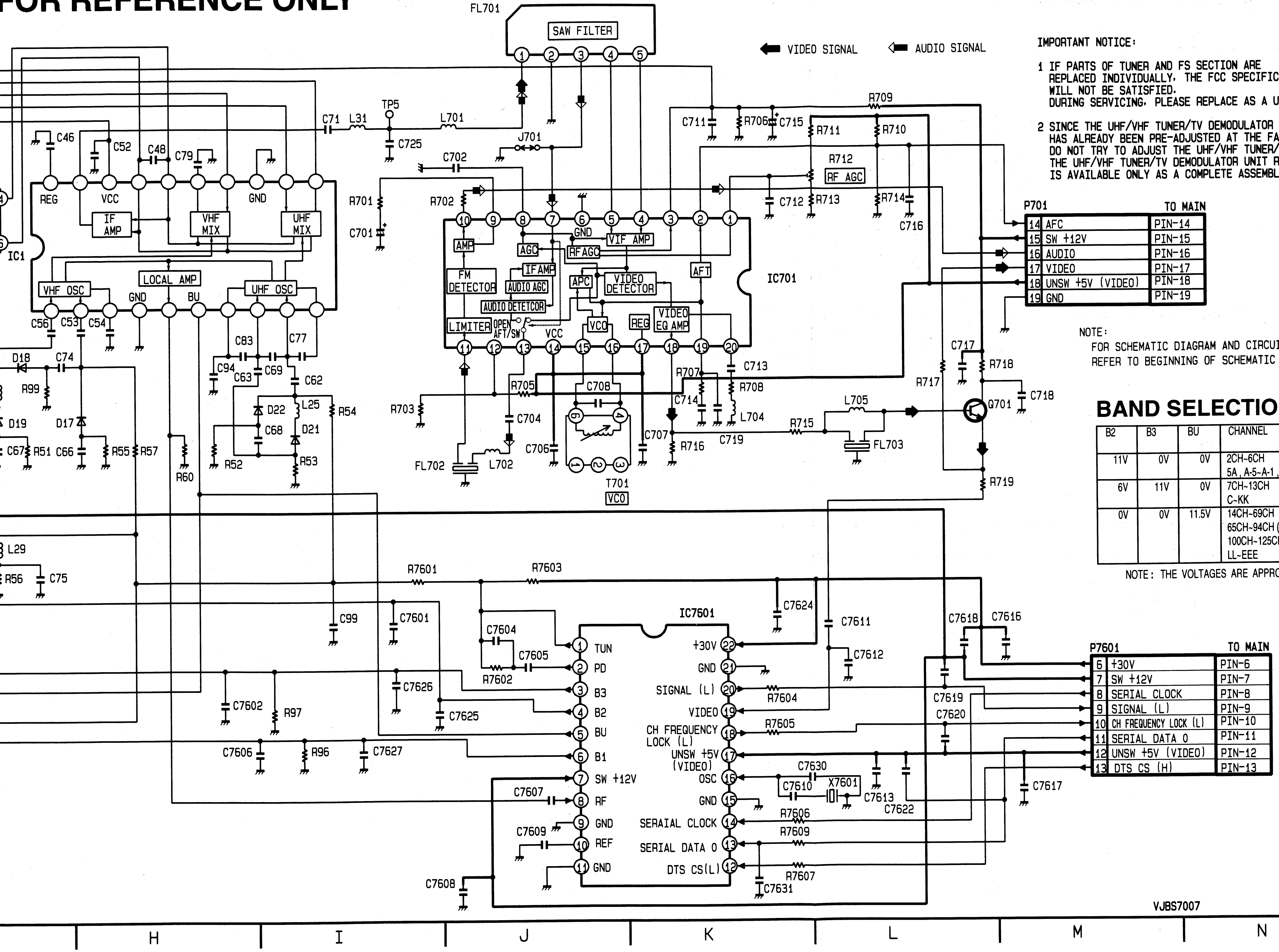
VJBS6037 D
VJBS6038 F
VJBS6039 E

G H I J K L M N

UHF/VHF TUNER TV DEMODURATOR SCHEMATIC DIAGRAM

“FOR REFERENCE


UHF/VHF
UHF/VHF
TO MAIN
P201
PIN-5 VIDEO 5
PIN-4 3/4 CH 4
PIN-3 TV (H)/VCR (L) 3
PIN-2 UNSW +5V (VIDEO) 2
PIN-1 AUDIO 1
L202
J201
C202
J202
L201
R204
C203
C212
C217
L209
C222
L204
L207
Q201
Q202
Q203
R215
R205
C257
R208
C258
C252
FL202
R214
R221
FL1
R242
C239
C229
X201
C243
IC201
VCC
ANT SW DRIVER
FM DEMODULATOR
SIF OSC
VHF OSC
VHF AMP
VIDEO CLAMP
VIDEO-RF CONVERTER
AUDIO PRE AMP
AUDIO-RF CONVERTER
C230
T202
C231
R238
C242
R236
C240
R234
C241
R235
T1
BURST LEVEL
IC1
REG
VCC
IF AMP
VHF MIX
C46
C52
C48
C79
VHF OSC
LOCAL AMP
GND
BU
C56
C53
C54
C83
C94
C63
C3
R3
D1
C1
C6
L5
C5
L10
R2
L11
C18
L12
R11
C13
C19
D4
R17
C24
D5
L16
C33
R23
R24
D6
R30
R28
C17
Q6
R63
C4
C34
R27
C32
R40
C35
R29
C43
C58
R31
R9
C7
D24
R6
C11
L1
C97
C61
D16
L26
D13
L23
C57
R49
R62
L24
D11
R46
L27
C45
R41
D9
C22
L28
C55
C59
R48
D15
R47
C12
C36
R44
C50
C96
D18
C74
L30
R99
R58
D19
D17
R50
D20
C67
R51
C66
R55
R57
R60
R52
C72
C98
L29
R66
R56
C75
R65
C49
C760
C7606
TP3
C95
C60
C92
C9
R7
C14
R12
C8
R18
C26
R19
C27
L13
R25
C15
C10
D3
L8
Q4
R26
C16
C28
L6
R13
C20
C21
R20
C37
D7
R15
R32
C44
D8
C38
C29
L7
C30
L21
L19
L20
5
4
3
2
1
A
B
C
D
E
F
G
H


FL701
SAW FILTER
VIDEO SIGNAL
AUDIO SIGNAL
IC1
REG
VCC
GND
IF AMP
VHF MIX
UHF MIX
VHF OSC
LOCAL AMP
UHF OSC
GND
BU
C46
C52
C48
C79
C56
C53
C54
C83
C77
C94
C63
C69
C62
D18
C74
R99
D19
D17
D22
L25
R54
C68
D21
C67
R51
C66
R55
R57
R52
R53
R60
L29
R56
C75
C71
L31
TP5
C725
L701
J701
C702
C711
R706
C715
R709
R711
R710
R712
RF AGC
R713
R714
C712
C716
R701
C701
R702
IC701
AMP
AGC
RF AGC
VIF AMP
IF AMP
FM DETECTOR
AUDIO AGC
APC
VIDEO DETECTOR
AFT
AUDIO DETETCOR
LIMITER
OPEN AFT/SW
VCC
VCO
REG
VIDEO EQ AMP
R703
R705
C708
C704
C706
FL702
L702
T701
VCO
R707
C713
R708
C714
L704
C707
R716
C719
R715
L705
FL703
C717
R718
R717
C718
Q701
R719
P701
TO MAIN
14 AFC PIN-14
15 SW +12V PIN-15
16 AUDIO PIN-16
17 VIDEO PIN-17
18 UNSW +5V (VIDEO) PIN-18
19 GND PIN-19
R7601
R7603
C99
C7601
C7624
C7611
C7604
C7605
R7602
C7626
C7625
C7602
R97
C7606
R96
C7627
IC7601
1 TUN
2 PD
3 B3
4 B2
5 BU
6 B1
7 SW +12V
8 RF
9 GND
10 REF
11 GND
22 +30V
21 GND
20 SIGNAL (L)
19 VIDEO
18 CH FREQUENCY LOCK (L)
17 UNSW +5V (VIDEO)
16 OSC
15 GND
14 SERAIAL CLOCK
13 SERIAL DATA 0
12 DTS CS(L)
C7612
R7604
R7605
C7630
C7610
X7601
C7613
C7622
R7606
R7609
R7607
C7631
C7607
C7609
C7608
C7618
C7616
C7619
C7620
C7617
P7601
TO MAIN
6 +30V PIN-6
7 SW +12V PIN-7
8 SERIAL CLOCK PIN-8
9 SIGNAL (L) PIN-9
10 CH FREQUENCY LOCK (L) PIN-10
11 SERIAL DATA 0 PIN-11
12 UNSW +5V (VIDEO) PIN-12
13 DTS CS (H) PIN-13
VJBS7007
H
I
J
K
L
M
N

IMPORTANT NOTICE:

1 IF PARTS OF TUNER AND FS SECTION ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED. DURING SERVICING, PLEASE REPLACE AS A UNIT.

2 SINCE THE UHF/VHF TUNER/TV DEMODULATOR UNIT HAS ALREADY BEEN PRE-ADJUSTED AT THE FACTORY, DO NOT TRY TO ADJUST THE UHF/VHF TUNER/TV DEMODULATOR UNIT. THE UHF/VHF TUNER/TV DEMODULATOR UNIT REPLACEMENT PART IS AVAILABLE ONLY AS A COMPLETE ASSEMBLY UNIT.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

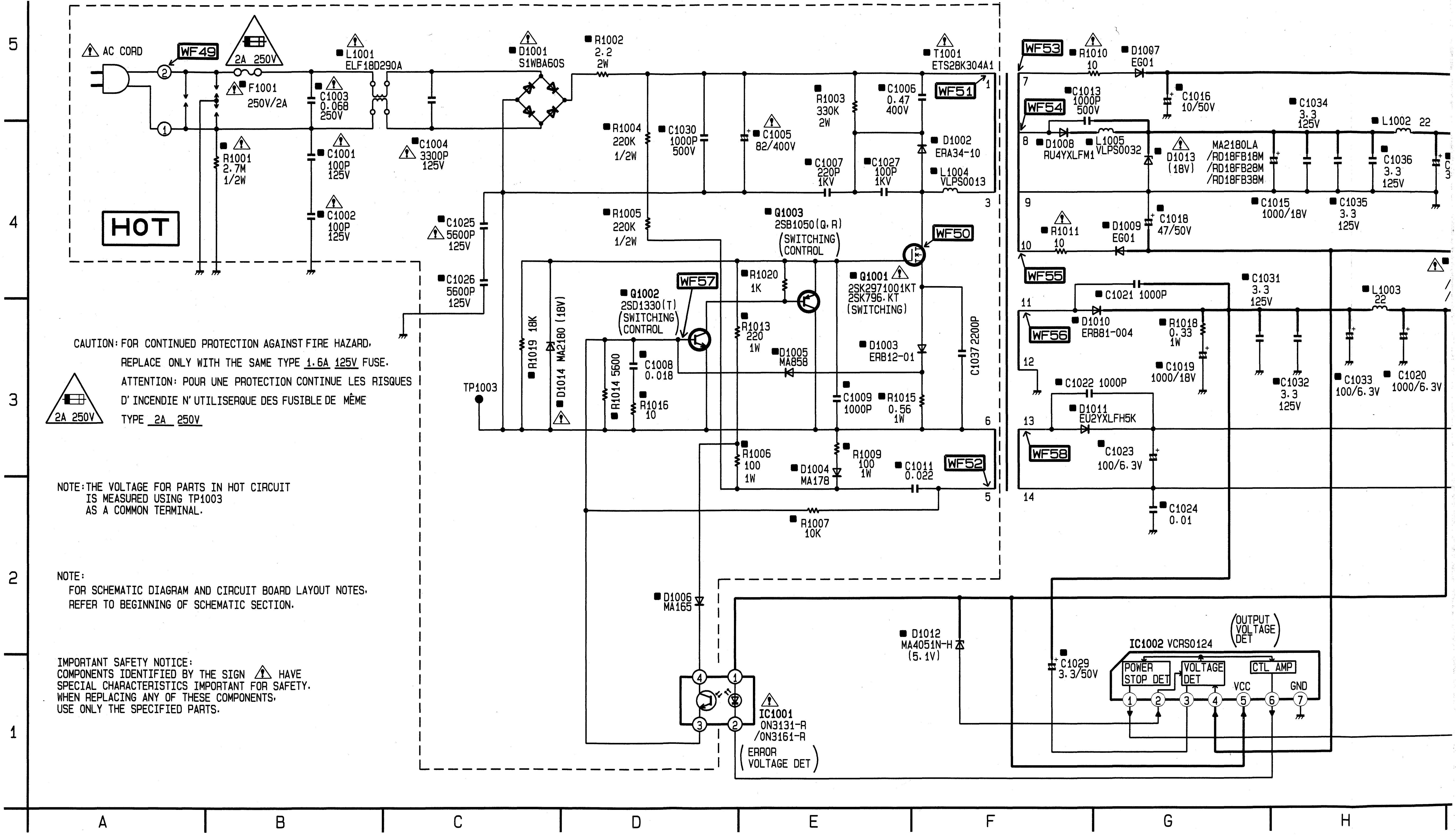
BAND SELECTION CHART

B2	B3	BU	CHANNEL
11V	0V	0V	2CH~6CH 5A , A-5~A-1 , A , B
6V	11V	0V	7CH~13CH C~KK
0V	0V	11.5V	14CH~69CH 65CH~94CH (CATV) 100CH~125CH (CATV) LL~EEE

NOTE: THE VOLTAGES ARE APPROXIMATE.

POWER SUPPLY SCHEMATIC DIAGRAM

HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.



5
4
3
2
1
A
B
C
D
E
F
G
H
AC CORD
WF49
2A 250V
F1001
250V/2A
L1001
ELF18D290A
C1003
0.068
250V
R1001
2.7M
1/2W
C1001
100P
125V
C1002
100P
125V
C1004
3300P
125V
HOT
D1001
S1WBA60S
R1002
2.2
2W
R1004
220K
1/2W
C1030
1000P
500V
C1005
82/400V
R1003
330K
2W
C1006
0.47
400V
WF51
T1001
ETS28K304A1
D1002
ERA34-10
C1007
220P
1KV
C1027
100P
1KV
L1004
VLPS0013
C1025
5600P
125V
C1026
5600P
125V
R1005
220K
1/2W
Q1003
2SB1050(Q.R)
(SWITCHING CONTROL)
WF50
Q1001
2SK2971001KT
2SK796.KT
(SWITCHING)
R1020
1K
WF57
Q1002
2SD1330(T)
(SWITCHING CONTROL)
R1019 18K
D1014 MA2180 (18V)
R1013
220
1W
D1005
MA858
D1003
ERB12-01
C1037 2200P
R1014 5600
C1008
0.018
R1016
10
C1009
1000P
R1015
0.56
1W
TP1003
R1006
100
1W
D1004
MA178
R1009
100
1W
C1011
0.022
WF52
R1007
10K
D1006
MA165
IC1001
ON3131-R
/ON3161-R
(ERROR VOLTAGE DET)
D1012
MA4051N-H
(5.1V)
C1029
3.3/50V
IC1002 VCRS0124
(OUTPUT VOLTAGE DET)
POWER STOP DET
VOLTAGE DET
CTL AMP
VCC
GND
WF53
R1010
10
D1007
EG01
C1016
10/50V
C1013
1000P
500V
WF54
D1008
RU4YXLFM1
L1005
VLPS0032
D1013
(18V)
MA2180LA
/RD18FB18M
/RD18FB28M
/RD18FB38M
C1034
3.3
125V
L1002 22
C1036
3.3
125V
C1015
1000/18V
C1035
3.3
125V
R1011
10
D1009
EG01
C1018
47/50V
WF55
C1021 1000P
C1031
3.3
125V
L1003
22
D1010
ERB81-004
WF56
R1018
0.33
1W
C1019
1000/18V
C1022 1000P
C1032
3.3
125V
C1033
100/6.3V
C1020
1000/6.3V
D1011
EU2YXLFH5K
WF58
C1023
100/6.3V
C1024
0.01

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÊME TYPE 2A 250V

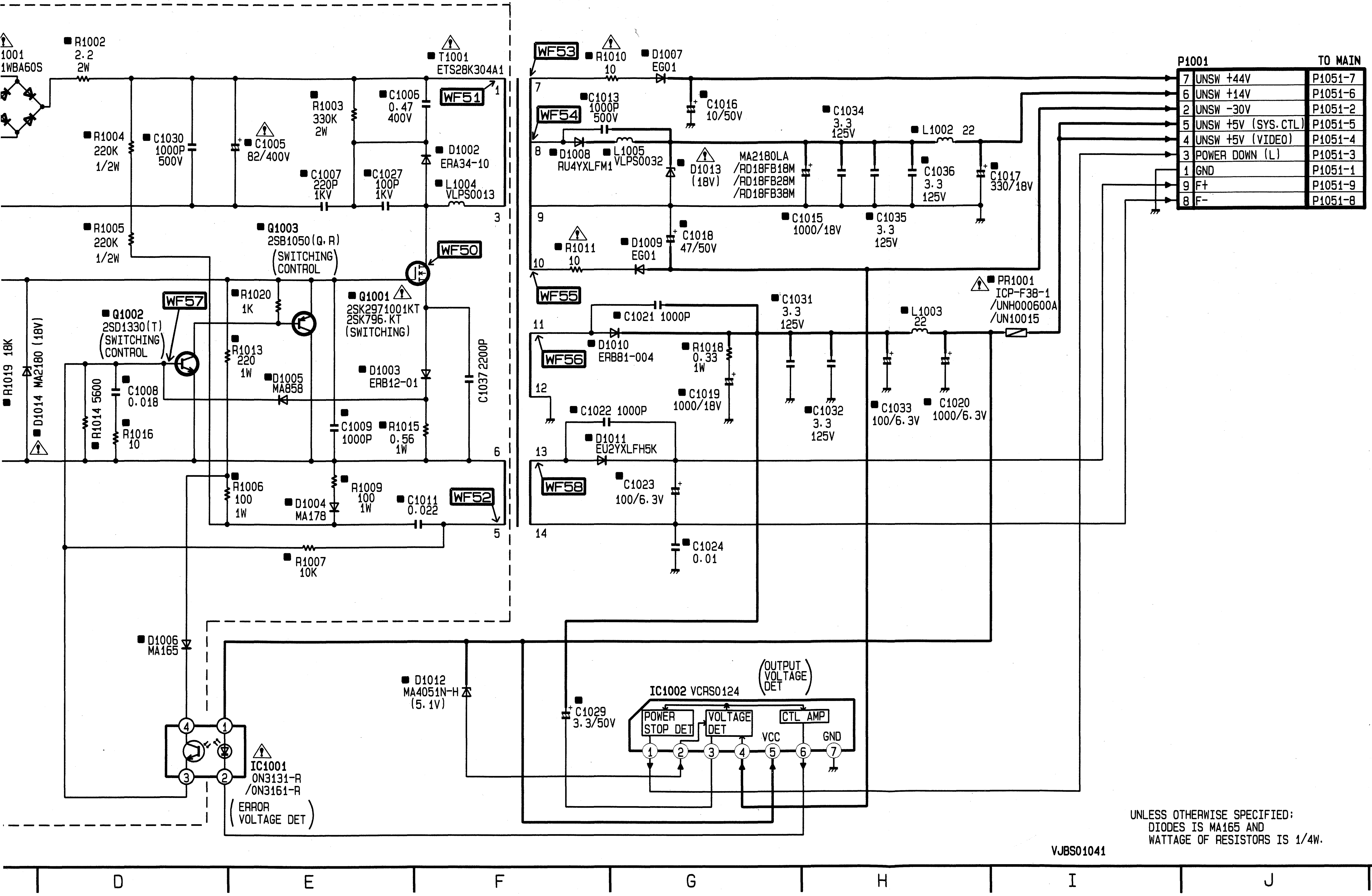
2A 250V

NOTE: THE VOLTAGE FOR PARTS IN HOT CIRCUIT IS MEASURED USING TP1003 AS A COMMON TERMINAL.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

ION TRANSFORMER WHEN SERVICING.


R1002 2.2 2W
1001 1WBA60S
T1001 ETS28K304A1
R1003 330K 2W
C1006 0.47 400V
WF51
R1004 220K 1/2W
C1030 1000P 500V
C1005 82/400V
D1002 ERA34-10
C1007 220P 1KV
C1027 100P 1KV
L1004 VLPS0013
R1005 220K 1/2W
Q1003 2SB1050(Q.R) (SWITCHING CONTROL)
WF50
R1020 1K
Q1001 2SK2971001KT 2SK796.KT (SWITCHING)
Q1002 2SD1330(T) (SWITCHING CONTROL)
WF57
R1013 220 1W
D1005 MA858
D1003 ERB12-01
C1037 2200P
R1019 18K
D1014 MA2180 (18V)
R1014 5600
C1008 0.018
R1016 10
C1009 1000P
R1015 0.56 1W
R1006 100 1W
D1004 MA178
R1009 100 1W
C1011 0.022
WF52
R1007 10K
D1006 MA165
IC1001 ON3131-R /ON3161-R
(ERROR VOLTAGE DET)
D1012 MA4051N-H (5.1V)
WF53
R1010 10
D1007 EG01
C1013 1000P 500V
WF54
C1016 10/50V
D1008 RU4YXLFM1
L1005 VLPS0032
D1013 (18V)
MA2180LA /RD18FB18M /RD18FB28M /RD18FB38M
C1034 3.3 125V
L1002 22
C1036 3.3 125V
C1017 330/18V
C1015 1000/18V
C1035 3.3 125V
R1011 10
D1009 EG01
C1018 47/50V
WF55
C1021 1000P
C1031 3.3 125V
PR1001 ICP-F38-1 /UNH000600A /UN10015
L1003 22
D1010 ERB81-004
WF56
R1018 0.33 1W
C1019 1000/18V
C1022 1000P
C1032 3.3 125V
C1033 100/6.3V
C1020 1000/6.3V
D1011 EU2YXLFH5K
WF58
C1023 100/6.3V
C1024 0.01
C1029 3.3/50V
IC1002 VCRS0124 (OUTPUT VOLTAGE DET)
POWER STOP DET
VOLTAGE DET
CTL AMP
VCC
GND
P1001
TO MAIN
7 UNSW +44V P1051-7
6 UNSW +14V P1051-6
2 UNSW -30V P1051-2
5 UNSW +5V (SYS.CTL) P1051-5
4 UNSW +5V (VIDEO) P1051-4
3 POWER DOWN (L) P1051-3
1 GND P1051-1
9 F+ P1051-9
8 F- P1051-8
D
E
F
G
H
I
J

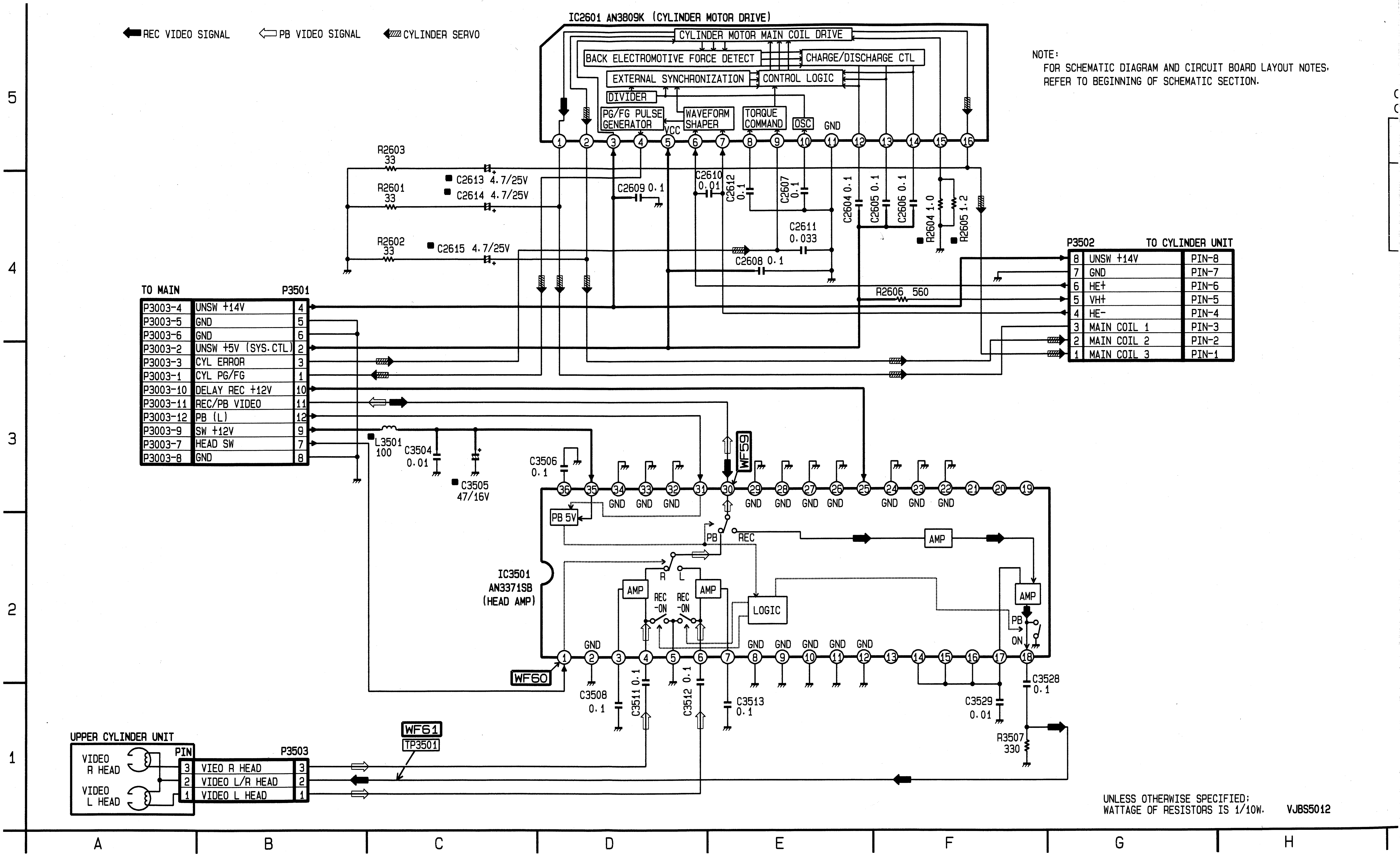
UNLESS OTHERWISE SPECIFIED;
DIODES IS MA165 AND
WATTAGE OF RESISTORS IS 1/4W.

VJBS01041

POWER SUPPLY VOLTAGE CHART

MODE / PIN NO.	REC	PLAY
IC1001		
1	5.1	5.1
2	4.4	4.4
3	-54.0	-54.0
4	-53.8	-53.8
IC1002		
1	5.2	5.2
2	0	0
3	0	0
4	-30.7	-30.7
5	5.2	5.2
6	4.4	4.4
7	0	0
Q1001		
G	0.3	0.3
S	0	0
D	133.5	133.5
Q1002		
E	0	0
C	0.3	0.3
B	0.6	0.6
Q1003		
E	0.3	0.3
C	0	0
B	0.3	0.3
TP1003	0	0

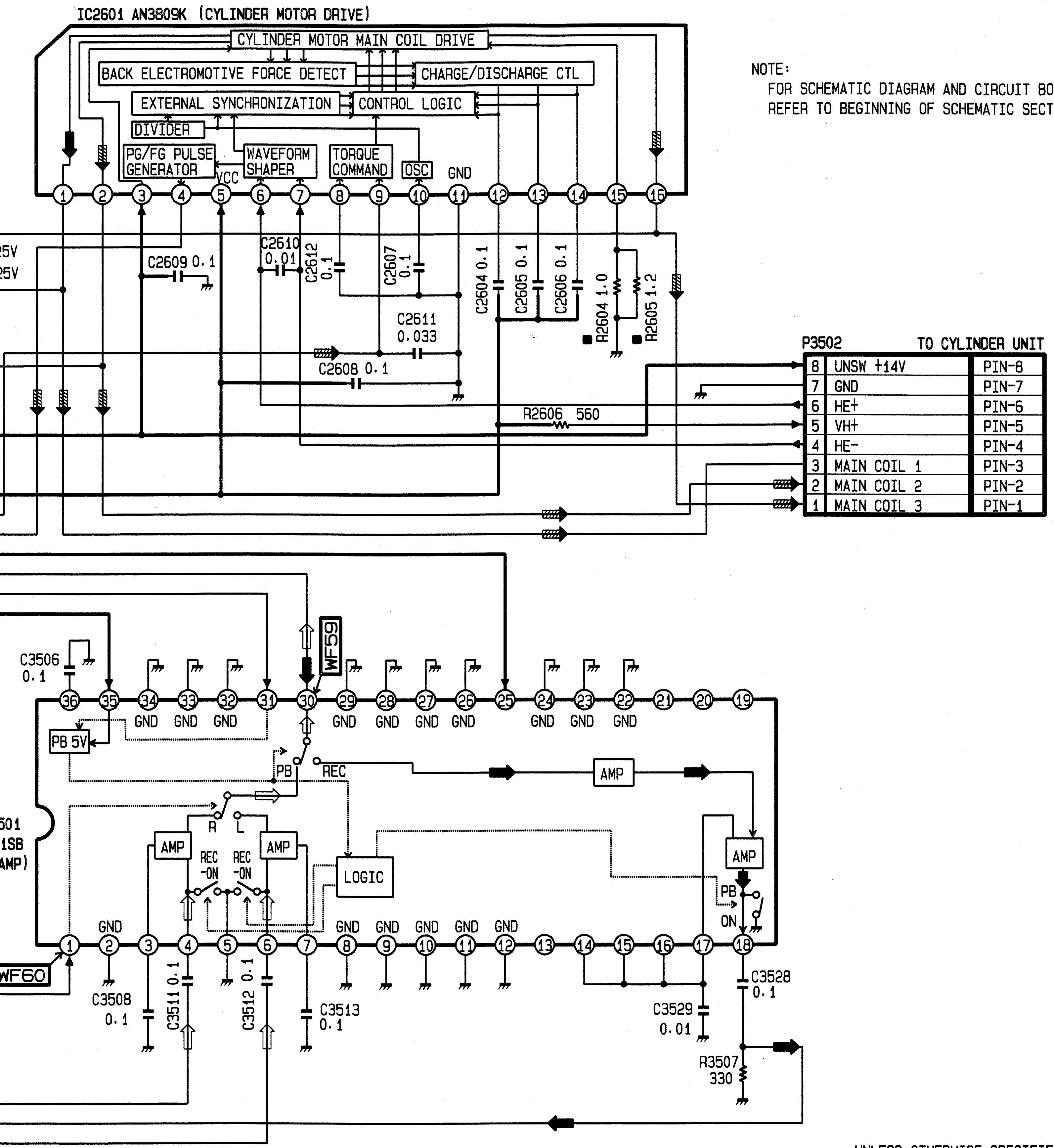
HEAD AMP SCHEMATIC DIAGRAM (A,B)


REC VIDEO SIGNAL
PB VIDEO SIGNAL
CYLINDER SERVO
IC2601 AN3809K (CYLINDER MOTOR DRIVE)
CYLINDER MOTOR MAIN COIL DRIVE
BACK ELECTROMOTIVE FORCE DETECT
CHARGE/DISCHARGE CTL
EXTERNAL SYNCHRONIZATION
CONTROL LOGIC
DIVIDER
PG/FG PULSE GENERATOR
VCC
WAVEFORM SHAPER
TORQUE COMMAND
OSC
GND
R2603 33
R2601 33
R2602 33
C2613 4.7/25V
C2614 4.7/25V
C2615 4.7/25V
C2609 0.1
C2610 0.01
C2612 0.1
C2607 0.1
C2611 0.033
C2608 0.1
C2604 0.1
C2605 0.1
C2606 0.1
R2604 1.0
R2605 1.2
R2606 560
P3502
TO CYLINDER UNIT
8 UNSW +14V PIN-8
7 GND PIN-7
6 HE+ PIN-6
5 VH+ PIN-5
4 HE- PIN-4
3 MAIN COIL 1 PIN-3
2 MAIN COIL 2 PIN-2
1 MAIN COIL 3 PIN-1
TO MAIN
P3501
P3003-4 UNSW +14V 4
P3003-5 GND 5
P3003-6 GND 6
P3003-2 UNSW +5V (SYS.CTL) 2
P3003-3 CYL ERROR 3
P3003-1 CYL PG/FG 1
P3003-10 DELAY REC +12V 10
P3003-11 REC/PB VIDEO 11
P3003-12 PB (L) 12
P3003-9 SW +12V 9
P3003-7 HEAD SW 7
P3003-8 GND 8
L3501 100
C3504 0.01
C3505 47/16V
C3506 0.1
WF59
WF60
WF61
TP3501
PB 5V
GND
PB
REC
AMP
R
L
REC -ON
LOGIC
ON
IC3501 AN3371SB (HEAD AMP)
C3508 0.1
C3511 0.1
C3512 0.1
C3513 0.1
C3529 0.01
C3528 0.1
R3507 330
UPPER CYLINDER UNIT
VIDEO R HEAD
VIDEO L HEAD
PIN
P3503
3 VIEO R HEAD 3
2 VIDEO L/R HEAD 2
1 VIDEO L HEAD 1
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

VJBS5012


IC2601 AN3809K (CYLINDER MOTOR DRIVE)
CYLINDER MOTOR MAIN COIL DRIVE
BACK ELECTROMOTIVE FORCE DETECT
CHARGE/DISCHARGE CTL
EXTERNAL SYNCHRONIZATION
CONTROL LOGIC
DIVIDER
PG/FG PULSE GENERATOR
WAVEFORM SHAPER
TORQUE COMMAND
OSC
VCC
GND
25V
25V
C2609 0.1
C2610 0.01
C2612 0.1
C2607 0.1
C2611 0.033
C2608 0.1
C2604 0.1
C2605 0.1
C2606 0.1
R2604 1.0
R2605 1.2
R2606 560
P3502
TO CYLINDER UNIT
8 UNSW +14V PIN-8
7 GND PIN-7
6 HE+ PIN-6
5 VH+ PIN-5
4 HE- PIN-4
3 MAIN COIL 1 PIN-3
2 MAIN COIL 2 PIN-2
1 MAIN COIL 3 PIN-1
C3506 0.1
WF59
PB 5V
GND
PB
REC
AMP
R
L
REC -ON
LOGIC
ON
501
1SB
AMP)
WF60
C3508 0.1
C3511 0.1
C3512 0.1
C3513 0.1
C3529 0.01
C3528 0.1
R3507 330

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W. **VJBS5012**

D E F G H

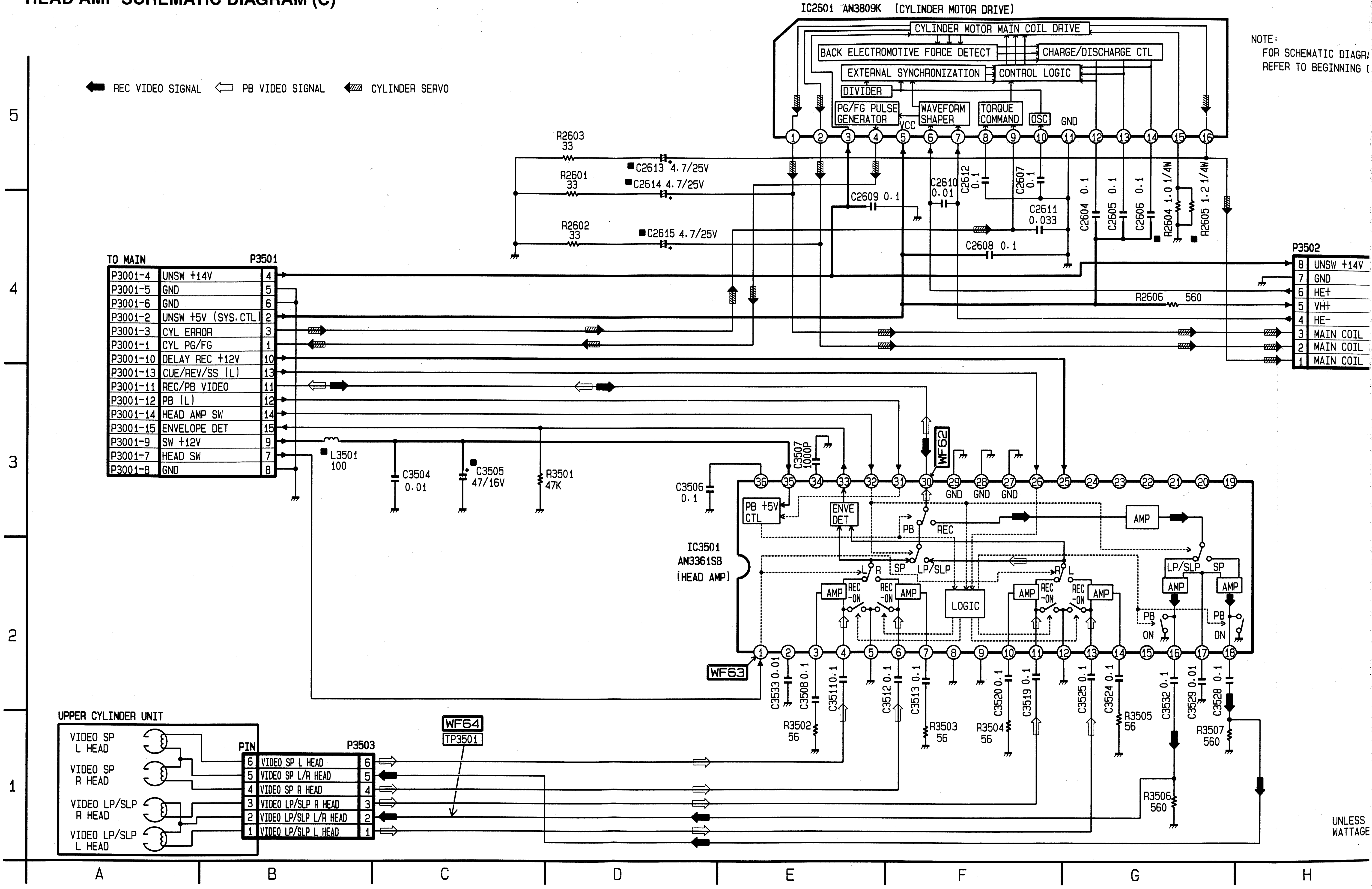
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

HEAD AMP VOLTAGE CHART

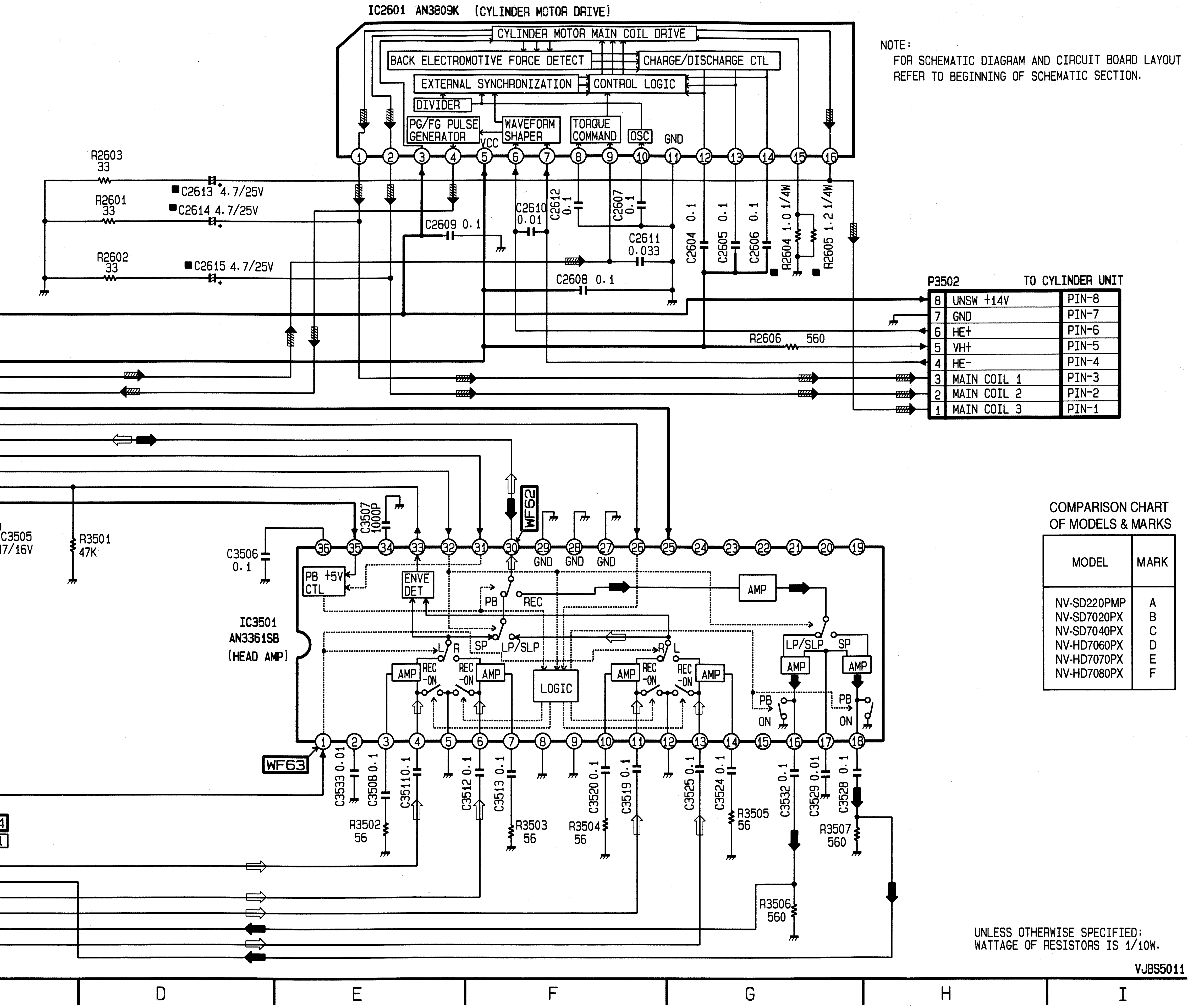
MODE / PIN NO.	STOP	REC	PLAY	FF	REW
IC2601					
1	13.0	13.0	13.0	13.0	13.0
2	13.0	13.0	13.0	13.0	13.0
3	13.5	13.5	13.5	13.5	13.5
4	1.2	1.2	1.2	1.2	1.2
5	5.1	5.1	5.1	5.1	5.1
6	0.9	0.9	0.9	0.9	0.9
7	1.0	1.0	1.0	1.0	1.0
8	0.7	0.7	0.7	0.7	0.7
9	2.6	2.6	2.6	2.6	2.6
10	1.5	1.5	1.5	1.5	1.5
11	0	0	0	0	0
12	3.9	3.9	3.9	3.9	3.9
13	3.9	3.9	3.9	3.9	3.9
14	3.9	3.9	3.9	3.9	3.9
15	0.1	0.1	0.1	0.1	0.1
16	13.2	13.2	13.2	13.2	13.2
IC3501					
1	2.6	2.6	2.6	2.6	2.6
2	0	0	0	0	0
3	0.3	0.3	1.4	0.3	0.3
4	0	0	0.7	0	0
5	0	0	0	0	0
6	0	0	0.7	0	0
7	0.2	0.2	1.4	0.2	0.2
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	---	---	---	---	---
14	0.2	0.2	2.2	0.2	0.2
15	---	---	---	---	---
16	0	6.3	0	0	0
17	0	6.3	0	0	0
18	0	6.3	0	0	0
19	---	---	---	---	---
20	---	---	---	---	---
21	---	---	---	---	---
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0.5	11.9	0.5	0.5	0.5
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	2.7	2.7	2.3	2.7	2.7
31	5.1	5.1	0.1	5.1	5.1
32	0	0	0	0	0
33	0	0	0	0	0
34	0	0	0	0	0
35	12.0	12.0	12.0	12.0	12.0
36	0.1	0.1	5.0	0.1	0.1
TP3501	0	0	0	0	0

HEAD AMP SCHEMATIC DIAGRAM (C)


IC2601 AN3809K (CYLINDER MOTOR DRIVE)
CYLINDER MOTOR MAIN COIL DRIVE
BACK ELECTROMOTIVE FORCE DETECT
CHARGE/DISCHARGE CTL
EXTERNAL SYNCHRONIZATION
CONTROL LOGIC
DIVIDER
PG/FG PULSE GENERATOR
WAVEFORM SHAPER
TORQUE COMMAND
OSC
VCC
GND
REC VIDEO SIGNAL
PB VIDEO SIGNAL
CYLINDER SERVO
R2603 33
R2601 33
R2602 33
C2613 4.7/25V
C2614 4.7/25V
C2615 4.7/25V
C2609 0.1
C2610 0.01
C2612 0.1
C2607 0.1
C2611 0.033
C2608 0.1
C2604 0.1
C2605 0.1
C2606 0.1
R2604 1.0 1/4W
R2605 1.2 1/4W
R2606 560
TO MAIN
P3501
P3001-4 UNSW +14V 4
P3001-5 GND 5
P3001-6 GND 6
P3001-2 UNSW +5V (SYS.CTL) 2
P3001-3 CYL ERROR 3
P3001-1 CYL PG/FG 1
P3001-10 DELAY REC +12V 10
P3001-13 CUE/REV/SS (L) 13
P3001-11 REC/PB VIDEO 11
P3001-12 PB (L) 12
P3001-14 HEAD AMP SW 14
P3001-15 ENVELOPE DET 15
P3001-9 SW +12V 9
P3001-7 HEAD SW 7
P3001-8 GND 8
P3502
8 UNSW +14V
7 GND
6 HE+
5 VH+
4 HE-
3 MAIN COIL
2 MAIN COIL
1 MAIN COIL
L3501 100
C3504 0.01
C3505 47/16V
R3501 47K
C3506 0.1
C3507 1000P
WF62
WF63
WF64
TP3501
IC3501 AN3361SB (HEAD AMP)
PB +5V CTL
ENVE DET
PB
REC
SP
LP/SLP
L
R
AMP
REC -ON
LOGIC
PB ON
GND
C3533 0.01
C3508 0.1
C3511 0.1
C3512 0.1
C3513 0.1
C3520 0.1
C3519 0.1
C3525 0.1
C3524 0.1
C3532 0.1
C3529 0.01
C3528 0.1
R3502 56
R3503 56
R3504 56
R3505 56
R3506 560
R3507 560
UPPER CYLINDER UNIT
VIDEO SP L HEAD
VIDEO SP R HEAD
VIDEO LP/SLP R HEAD
VIDEO LP/SLP L HEAD
PIN
P3503
6 VIDEO SP L HEAD 6
5 VIDEO SP L/R HEAD 5
4 VIDEO SP R HEAD 4
3 VIDEO LP/SLP R HEAD 3
2 VIDEO LP/SLP L/R HEAD 2
1 VIDEO LP/SLP L HEAD 1
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE:
FOR SCHEMATIC DIAGRA
REFER TO BEGINNING (

UNLESS
WATTAGE


IC2601 AN3809K (CYLINDER MOTOR DRIVE)
CYLINDER MOTOR MAIN COIL DRIVE
BACK ELECTROMOTIVE FORCE DETECT
CHARGE/DISCHARGE CTL
EXTERNAL SYNCHRONIZATION
CONTROL LOGIC
DIVIDER
PG/FG PULSE GENERATOR
WAVEFORM SHAPER
TORQUE COMMAND
OSC
VCC
GND
R2603 33
R2601 33
R2602 33
C2613 4.7/25V
C2614 4.7/25V
C2615 4.7/25V
C2609 0.1
C2610 0.01
C2612 0.1
C2607 0.1
C2611 0.033
C2608 0.1
C2604 0.1
C2605 0.1
C2606 0.1
R2604 1.0 1/4W
R2605 1.2 1/4W
R2606 560
P3502
TO CYLINDER UNIT
8 UNSW +14V PIN-8
7 GND PIN-7
6 HE+ PIN-6
5 VH+ PIN-5
4 HE- PIN-4
3 MAIN COIL 1 PIN-3
2 MAIN COIL 2 PIN-2
1 MAIN COIL 3 PIN-1
WF62
C3507 1000P
C3505 47/16V
R3501 47K
C3506 0.1
IC3501 AN3361SB (HEAD AMP)
PB +5V CTL
ENVE DET
PB
REC
AMP
L
R
SP
LP/SLP
REC -ON
LOGIC
PB ON
GND
WF63
C3533 0.01
C3508 0.1
C3511 0.1
C3512 0.1
C3513 0.1
C3520 0.1
C3519 0.1
C3525 0.1
C3524 0.1
C3532 0.1
C3529 0.01
C3528 0.1
R3502 56
R3503 56
R3504 56
R3505 56
R3507 560
R3506 560
D
E
F
G
H
I

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

UNLESS OTHERWISE SPECIFIED:
WATTAGE OF RESISTORS IS 1/10W.

VJBS5011

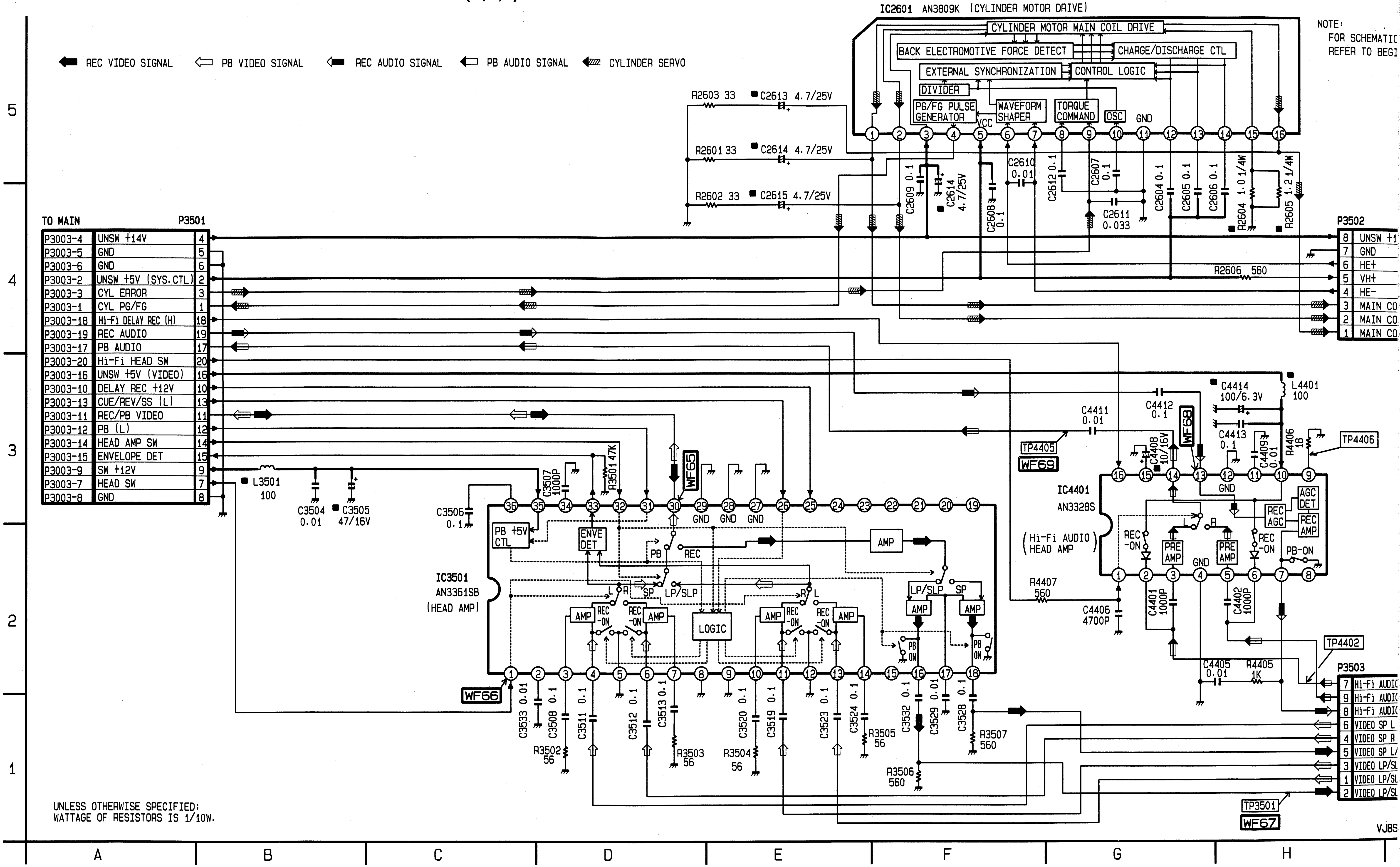
COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

HEAD AMP VOLTAGE CHART

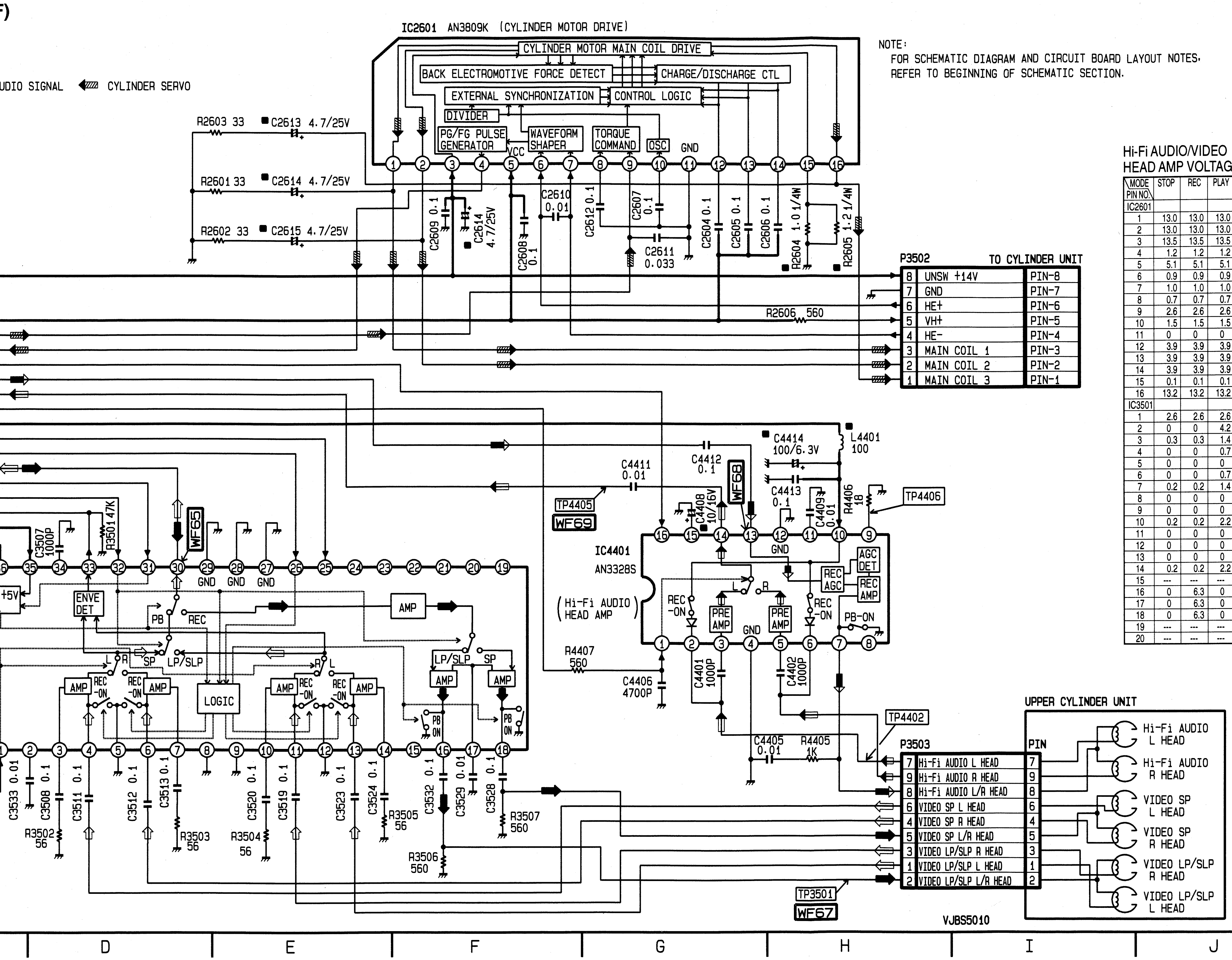
MODE / PIN NO.	STOP	REC	PLAY	FF	REW
IC2601					
1	13.0	13.0	13.0	13.0	13.0
2	13.0	13.0	13.0	13.0	13.0
3	13.5	13.5	13.5	13.5	13.5
4	1.2	1.2	1.2	1.2	1.2
5	5.1	5.1	5.1	5.1	5.1
6	0.9	0.9	0.9	0.9	0.9
7	1.0	1.0	1.0	1.0	1.0
8	0.7	0.7	0.7	0.7	0.7
9	2.6	2.6	2.6	2.6	2.6
10	1.5	1.5	1.5	1.5	1.5
11	0	0	0	0	0
12	3.9	3.9	3.9	3.9	3.9
13	3.9	3.9	3.9	3.9	3.9
14	3.9	3.9	3.9	3.9	3.9
15	0.1	0.1	0.1	0.1	0.1
16	13.2	13.2	13.2	13.2	13.2
IC3501					
1	2.6	2.6	2.6	2.6	2.6
2	0	0	4.2	0	0
3	0.3	0.3	1.4	0.3	0.3
4	0	0	0.7	0	0
5	0	0	0	0	0
6	0	0	0.7	0	0
7	0.2	0.2	1.4	0.2	0.2
8	0	0	0	0	0
9	0	0	0	0	0
10	0.2	0.2	2.2	0.2	0.2
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0.2	0.2	2.2	0.2	0.2
15	---	---	---	---	---
16	0	6.3	0	0	0
17	0	6.3	0	0	0
18	0	6.3	0	0	0
19	---	---	---	---	---
20	---	---	---	---	---
21	---	---	---	---	---
22	---	---	---	---	---
23	---	---	---	---	---
24	---	---	---	---	---
25	0.5	11.9	0.5	0.5	0.5
26	5.0	5.0	5.0	5.0	5.0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	2.7	2.7	2.3	2.7	2.7
31	5.1	5.1	0.1	5.1	5.1
32	0.1	01	0.1	0.1	0.1
33	0	0	0	0.2	0.2
34	0.1	0.1	0.7	0.1	0.1
35	12.0	12.0	12.0	12.0	12.0
36	0.1	0.1	5.0	0.1	0.1
TP3501	0	0	0	0	0

Hi-Fi AUDIO/VIDEO HEAD AMP SCHEMATIC DIAGRAM (D,E,F)


REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL
CYLINDER SERVO
IC2601 AN3809K (CYLINDER MOTOR DRIVE)
CYLINDER MOTOR MAIN COIL DRIVE
BACK ELECTROMOTIVE FORCE DETECT
CHARGE/DISCHARGE CTL
EXTERNAL SYNCHRONIZATION
CONTROL LOGIC
DIVIDER
PG/FG PULSE GENERATOR
WAVEFORM SHAPER
TORQUE COMMAND
OSC
VCC
GND
NOTE:
FOR SCHEMATIC
REFER TO BEGI
R2603 33
C2613 4.7/25V
R2601 33
C2614 4.7/25V
R2602 33
C2615 4.7/25V
C2609 0.1
C2614 4.7/25V
C2608 0.1
C2610 0.01
C2612 0.1
C2607 0.1
C2611 0.033
C2604 0.1
C2605 0.1
C2606 0.1
R2604 1.0 1/4W
R2605 1.2 1/4W
R2606 560
TO MAIN
P3501
P3003-4 UNSW +14V 4
P3003-5 GND 5
P3003-6 GND 6
P3003-2 UNSW +5V (SYS.CTL) 2
P3003-3 CYL ERROR 3
P3003-1 CYL PG/FG 1
P3003-18 Hi-Fi DELAY REC (H) 18
P3003-19 REC AUDIO 19
P3003-17 PB AUDIO 17
P3003-20 Hi-Fi HEAD SW 20
P3003-16 UNSW +5V (VIDEO) 16
P3003-10 DELAY REC +12V 10
P3003-13 CUE/REV/SS (L) 13
P3003-11 REC/PB VIDEO 11
P3003-12 PB (L) 12
P3003-14 HEAD AMP SW 14
P3003-15 ENVELOPE DET 15
P3003-9 SW +12V 9
P3003-7 HEAD SW 7
P3003-8 GND 8
P3502
8 UNSW +1
7 GND
6 HE+
5 VH+
4 HE-
3 MAIN CO
2 MAIN CO
1 MAIN CO
L3501 100
C3504 0.01
C3505 47/16V
C3506 0.1
C3507 1000P
R3501 47K
WF65
WF66
WF67
WF68
WF69
IC3501 AN3361SB (HEAD AMP)
PB +5V CTL
ENVE DET
PB
REC
AMP
SP
LP/SLP
L
R
REC -ON
LOGIC
PB ON
GND
C3533 0.01
C3508 0.1
C3511 0.1
C3512 0.1
C3513 0.1
C3520 0.1
C3519 0.1
C3523 0.1
C3524 0.1
C3532 0.1
C3529 0.01
C3528 0.1
R3502 56
R3503 56
R3504 56
R3505 56
R3506 560
R3507 560
IC4401 AN3328S (Hi-Fi AUDIO HEAD AMP)
REC AGC
AGC DET
REC AMP
PRE AMP
REC -ON
PB-ON
C4411 0.01
C4412 0.1
C4414 100/6.3V
L4401 100
C4413 0.1
C4408 10/16V
C4409 0.01
R4406 18
R4407 560
C4406 4700P
C4401 1000P
C4402 1000P
C4405 0.01
R4405 1K
TP4405
TP4406
TP4402
TP3501
P3503
7 Hi-Fi AUDI
9 Hi-Fi AUDI
8 Hi-Fi AUDI
6 VIDEO SP L
4 VIDEO SP R
5 VIDEO SP L/
3 VIDEO LP/SL
1 VIDEO LP/SL
2 VIDEO LP/SL
VJBS
A
B
C
D
E
F
G
H
1
2
3
4
5

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.


F)
UDIO SIGNAL
CYLINDER SERVO
IC2601 AN3809K (CYLINDER MOTOR DRIVE)
CYLINDER MOTOR MAIN COIL DRIVE
BACK ELECTROMOTIVE FORCE DETECT
CHARGE/DISCHARGE CTL
EXTERNAL SYNCHRONIZATION
CONTROL LOGIC
DIVIDER
PG/FG PULSE GENERATOR
WAVEFORM SHAPER
TORQUE COMMAND
OSC
VCC
GND
R2603 33
C2613 4.7/25V
R2601 33
C2614 4.7/25V
R2602 33
C2615 4.7/25V
C2609 0.1
C2614 4.7/25V
C2608 0.1
C2610 0.01
C2612 0.1
C2607 0.1
C2611 0.033
C2604 0.1
C2605 0.1
C2606 0.1
R2604 1.0 1/4W
R2605 1.2 1/4W
P3502
TO CYLINDER UNIT
8 UNSW +14V PIN-8
7 GND PIN-7
6 HE+ PIN-6
5 VH+ PIN-5
4 HE- PIN-4
3 MAIN COIL 1 PIN-3
2 MAIN COIL 2 PIN-2
1 MAIN COIL 3 PIN-1
R2606 560
C4414 100/6.3V
L4401 100
C4411 0.01
C4412 0.1
C4413 0.1
C4408 10/16V
C4409 0.01
R4406 18
WF68
TP4405
WF69
TP4406
IC4401 AN3328S
(Hi-Fi AUDIO HEAD AMP)
REC -ON
PRE AMP
L
R
REC AGC
AGC DET
REC AMP
PB-ON
R4407 560
C4406 4700P
C4401 1000P
C4402 1000P
C4405 0.01
R4405 1K
TP4402
C3507 1000P
R3501 47K
WF65
+5V
ENVE DET
PB
REC
AMP
SP
LP/SLP
LOGIC
REC -ON
PB ON
C3533 0.01
C3508 0.1
C3511 0.1
C3512 0.1
C3513 0.1
C3520 0.1
C3519 0.1
C3523 0.1
C3524 0.1
C3532 0.1
C3529 0.01
C3528 0.1
R3502 56
R3503 56
R3504 56
R3505 56
R3506 560
R3507 560
TP3501
WF67
P3503
UPPER CYLINDER UNIT
PIN
7 Hi-Fi AUDIO L HEAD 7
9 Hi-Fi AUDIO R HEAD 9
8 Hi-Fi AUDIO L/R HEAD 8
6 VIDEO SP L HEAD 6
4 VIDEO SP R HEAD 4
5 VIDEO SP L/R HEAD 5
3 VIDEO LP/SLP R HEAD 3
1 VIDEO LP/SLP L HEAD 1
2 VIDEO LP/SLP L/R HEAD 2
Hi-Fi AUDIO L HEAD
Hi-Fi AUDIO R HEAD
VIDEO SP L HEAD
VIDEO SP R HEAD
VIDEO LP/SLP R HEAD
VIDEO LP/SLP L HEAD
VJBS5010
D
E
F
G
H
I
J

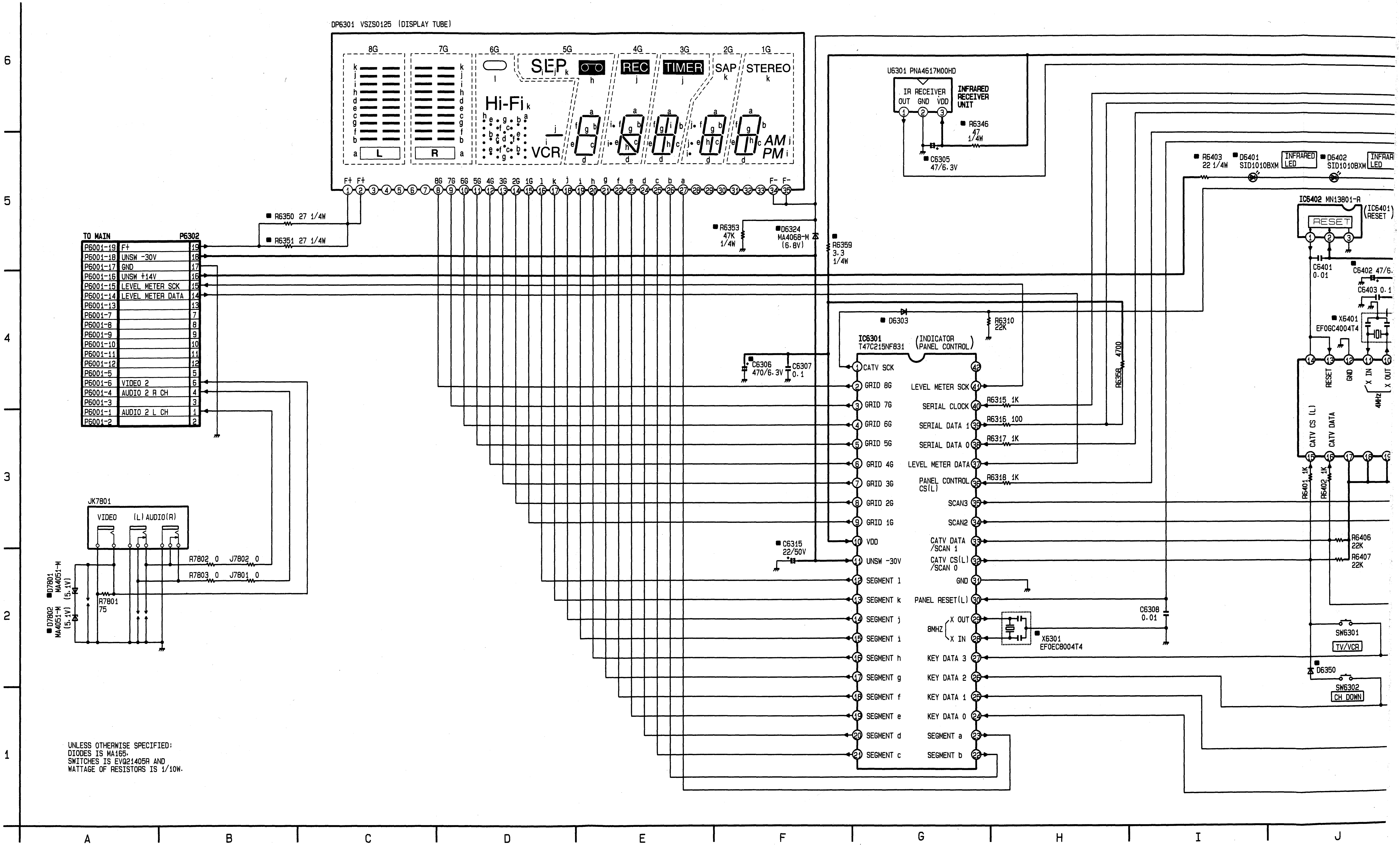
Hi-Fi AUDIO/VIDEO HEAD AMP VOLTAGE CHART

MODE / PIN NO.	STOP	REC	PLAY	FF	REW
IC2601					
1	13.0	13.0	13.0	13.0	13.0
2	13.0	13.0	13.0	13.0	13.0
3	13.5	13.5	13.5	13.5	13.5
4	1.2	1.2	1.2	1.2	1.2
5	5.1	5.1	5.1	5.1	5.1
6	0.9	0.9	0.9	0.9	0.9
7	1.0	1.0	1.0	1.0	1.0
8	0.7	0.7	0.7	0.7	0.7
9	2.6	2.6	2.6	2.6	2.6
10	1.5	1.5	1.5	1.5	1.5
11	0	0	0	0	0
12	3.9	3.9	3.9	3.9	3.9
13	3.9	3.9	3.9	3.9	3.9
14	3.9	3.9	3.9	3.9	3.9
15	0.1	0.1	0.1	0.1	0.1
16	13.2	13.2	13.2	13.2	13.2
IC3501					
1	2.6	2.6	2.6	2.6	2.6
2	0	0	4.2	0	0
3	0.3	0.3	1.4	0.3	0.3
4	0	0	0.7	0	0
5	0	0	0	0	0
6	0	0	0.7	0	0
7	0.2	0.2	1.4	0.2	0.2
8	0	0	0	0	0
9	0	0	0	0	0
10	0.2	0.2	2.2	0.2	0.2
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0.2	0.2	2.2	0.2	0.2
15	---	---	---	---	---
16	0	6.3	0	0	0
17	0	6.3	0	0	0
18	0	6.3	0	0	0
19	---	---	---	---	---
20	---	---	---	---	---
21	---	---	---	---	---
22	---	---	---	---	---
23	---	---	---	---	---
24	---	---	---	---	---
25	0.5	11.9	0.5	0.5	0.5
26	5.0	5.0	5.0	5.0	5.0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	2.7	2.7	2.3	2.7	2.7
31	5.1	5.1	0.1	5.1	5.1
32	0.1	0.1	0.1	0.1	0.1
33	0	0	0	0.2	0.2
34	0.1	0.1	0.7	0.1	0.1
35	12.0	12.0	12.0	12.0	12.0
36	0.1	0.1	5.0	0.1	0.1
IC4401					
1	2.6	0	2.6	2.6	2.6
2	0	4.0	0	0	0
3	0	0.6	0	0	0
4	0	0	0	0	0
5	0.7	0.6	0	0	0
6	0	4.0	0	0	0
7	1.0	1.0	1.0	1.0	1.0
8	---	---	---	---	---
9	2.6	2.6	2.6	2.6	2.6
10	1.5	1.5	1.5	1.5	1.5
11	0	0	0	0	0
12	0	0	0	0	0
13	3.9	3.9	3.9	3.9	3.9
14	3.9	3.9	3.9	3.9	3.9
15	0.1	0.1	0.1	0.1	0.1
16	13.0	13.0	13.0	13.0	13.0
TP3501	0	0	0	0	0
TP4402	0	4.0	4.0	0	0
TP4405	0	0	0	0	0
TP4406	2.6	2.6	2.6	2.6	2.6

COMPARISON CHART OF MODELS & MARKS

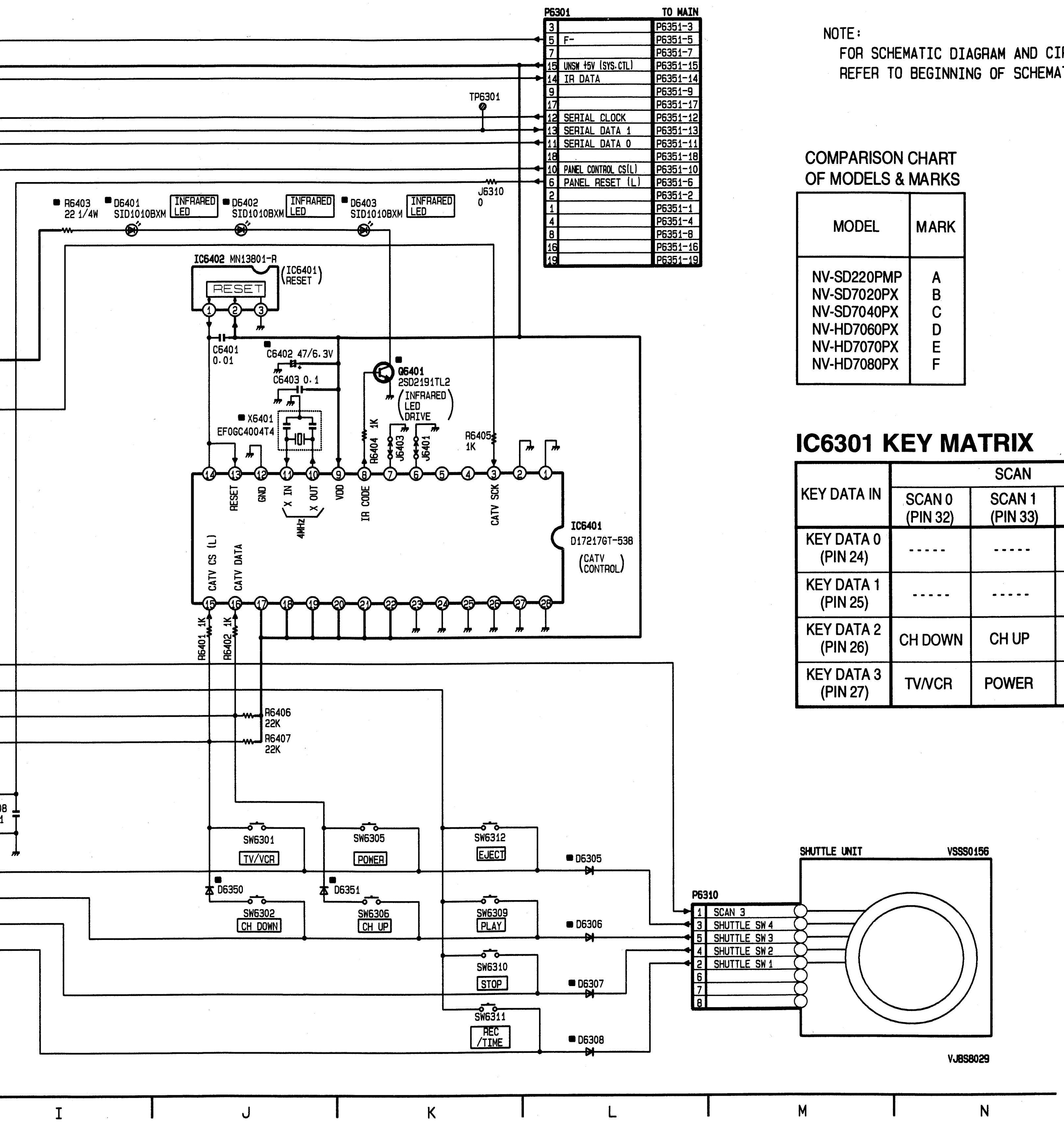
MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

OPERATION SCHEMATIC DIAGRAM (F)



DP6301 VSZS0125 (DISPLAY TUBE)
8G 7G 6G 5G 4G 3G 2G 1G
SEP
REC
TIMER
SAP
STEREO
Hi-Fi
VCR
AM
PM
L
R
F+ F+
F- F-
U6301 PNA4617M00HD
IR RECEIVER
OUT GND VDD
INFRARED RECEIVER UNIT
R6346 47 1/4W
C6305 47/6.3V
R6403 22 1/4W
D6401 SID1010BXM
INFRARED LED
D6402 SID1010BXM
IC6402 MN13801-R
(IC6401) RESET)
RESET
C6401 0.01
C6402 47/6.
C6403 0.1
X6401 EF0GC4004T4
RESET
GND
X IN
X OUT
4MHz
CATV CS (L)
CATV DATA
R6401 1K
R6402 1K
R6406 22K
R6407 22K
SW6301 TV/VCR
D6350
SW6302 CH DOWN
R6350 27 1/4W
R6351 27 1/4W
TO MAIN
P6302
P6001-19 F+ 19
P6001-18 UNSW -30V 18
P6001-17 GND 17
P6001-16 UNSW +14V 16
P6001-15 LEVEL METER SCK 15
P6001-14 LEVEL METER DATA 14
P6001-13 13
P6001-7 7
P6001-8 8
P6001-9 9
P6001-10 10
P6001-11 11
P6001-12 12
P6001-5 5
P6001-6 VIDEO 2 6
P6001-4 AUDIO 2 R CH 4
P6001-3 3
P6001-1 AUDIO 2 L CH 1
P6001-2 2
R6353 47K 1/4W
D6324 MA4068-M (6.8V)
R6359 3.3 1/4W
D6303
R6310 22K
R6358 4700
IC6301 T47C215NF831 (INDICATOR PANEL CONTROL)
C6306 470/6.3V
C6307 0.1
C6315 22/50V
CATV SCK
GRID 8G
GRID 7G
GRID 6G
GRID 5G
GRID 4G
GRID 3G
GRID 2G
GRID 1G
VDD
UNSW -30V
SEGMENT 1
SEGMENT k
SEGMENT j
SEGMENT i
SEGMENT h
SEGMENT g
SEGMENT f
SEGMENT e
SEGMENT d
SEGMENT c
LEVEL METER SCK
SERIAL CLOCK
SERIAL DATA 1
SERIAL DATA 0
LEVEL METER DATA
PANEL CONTROL CS(L)
SCAN3
SCAN2
CATV DATA /SCAN 1
CATV CS(L) /SCAN 0
GND
PANEL RESET(L)
8MHZ X OUT X IN
KEY DATA 3
KEY DATA 2
KEY DATA 1
KEY DATA 0
SEGMENT a
SEGMENT b
R6315 1K
R6316 100
R6317 1K
R6318 1K
C6308 0.01
X6301 EF0EC8004T4
JK7801
VIDEO (L) AUDIO (R)
R7802 0
J7802 0
R7803 0
J7801 0
R7801 75
D7801 MA4051-H (5.1V)
D7802 MA4051-H (5.1V)
6 5 4 3 2 1
A B C D E F G H I J

UNLESS OTHERWISE SPECIFIED:
DIODES IS MA165.
SWITCHES IS EVQ21405R AND
WATTAGE OF RESISTORS IS 1/10W.


P6301
TO MAIN
F-
UNSW +5V (SYS.CTL)
IR DATA
SERIAL CLOCK
SERIAL DATA 1
SERIAL DATA 0
PANEL CONTROL CS(L)
PANEL RESET (L)
P6351-3
P6351-5
P6351-7
P6351-15
P6351-14
P6351-9
P6351-17
P6351-12
P6351-13
P6351-11
P6351-18
P6351-10
P6351-6
P6351-2
P6351-1
P6351-4
P6351-8
P6351-16
P6351-19
TP6301
J6310
0
R6403
22 1/4W
D6401
SID1010BXM
INFRARED LED
D6402
SID1010BXM
INFRARED LED
D6403
SID1010BXM
INFRARED LED
IC6402 MN13801-R
RESET
(IC6401 RESET)
C6401
0.01
C6402 47/6.3V
C6403 0.1
Q6401
2SD2191TL2
(INFRARED LED DRIVE)
X6401
EF0GC4004T4
R6404 1K
J6403
J6401
R6405
1K
RESET
GND
X IN
X OUT
4MHz
VDD
IR CODE
CATV SCK
IC6401
D17217GT-538
(CATV CONTROL)
CATV CS (L)
CATV DATA
R6401 1K
R6402 1K
R6406
22K
R6407
22K
SW6301
TV/VCR
SW6305
POWER
SW6312
EJECT
D6305
D6350
SW6302
CH DOWN
D6351
SW6306
CH UP
SW6309
PLAY
D6306
SW6310
STOP
D6307
SW6311
REC /TIME
D6308
P6310
SCAN 3
SHUTTLE SW 4
SHUTTLE SW 3
SHUTTLE SW 2
SHUTTLE SW 1
SHUTTLE UNIT
VSSS0156
VJBS8029
I
J
K
L
M
N

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

IC6301 KEY MATRIX

KEY DATA IN	SCAN		
	SCAN 0 (PIN 32)	SCAN 1 (PIN 33)	SCAN 2 (PIN 34)
KEY DATA 0 (PIN 24)	-----	-----	REC/TIME
KEY DATA 1 (PIN 25)	-----	-----	STOP
KEY DATA 2 (PIN 26)	CH DOWN	CH UP	PLAY
KEY DATA 3 (PIN 27)	TV/VCR	POWER	EJECT

OPERATION VOLTAGE CHART

MODE / PIN NO.	REC	PLAY
IC6301		
1	5.0	5.0
2	-26.6	-26.6
3	-26.6	-26.6
4	-26.6	-26.6
5	-26.6	-26.6
6	-26.6	-26.6
7	-26.6	-26.6
8	-26.6	-26.6
9	-26.6	-26.6
10	5.1	5.1
11	-29.8	-29.8
12	-26.2	-26.2
13	-21.8	-21.8
14	-13.1	-13.1
15	-17.6	-17.6
16	-21.9	-21.9
17	-21.8	-21.8
18	-13.1	-13.1
19	-4.8	-4.8
20	-4.8	-4.8
21	-13.2	-13.2
22	-4.7	-4.7
23	-0.7	-0.7
24	5.2	5.2
25	5.2	5.2
26	5.2	5.2
27	5.2	5.2
28	2.3	2.3
29	2.3	2.3
30	5.1	5.1
31	0	0
32	5.2	5.2
33	5.2	5.2
34	5.2	5.2
35	5.2	5.2
36	2.5	2.5
37	0	0
38	4.7	4.7
39	5.1	5.1
40	4.5	4.5
41	5.2	5.2
42	---	---

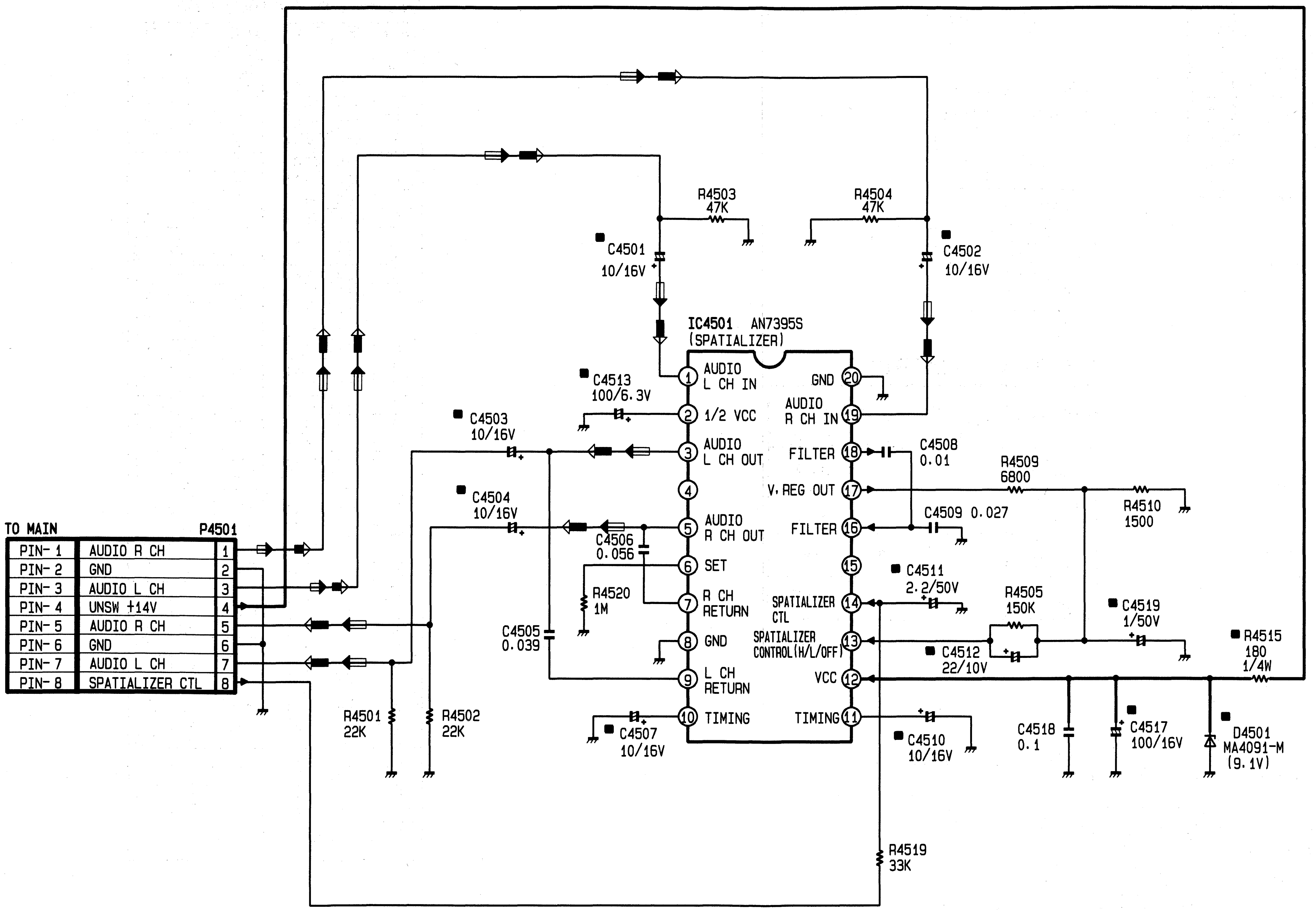
MODE / PIN NO.	REC	PLAY
IC6401		
1	0	0
2	0	0
3	5.1	5.1
4	---	---
5	---	---
6	0	0
7	0	0
8	0	0
9	5.1	5.1
10	2.6	2.6
11	2.5	2.5
12	0	0
13	5.1	5.1
14	5.1	5.1
15	5.1	5.1
16	5.1	5.1
17	5.1	5.1
18	5.1	5.1
19	5.1	5.1
20	5.1	5.1
21	5.1	5.1
22	5.1	5.1
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
IC6402		
1	5.1	5.1
2	5.1	5.1
3	0	0
Q6401		
E	0	0
C	11.0	11.0
B	0	0
TP6301	5.1	5.1

SPATIALIZER SCHEMATIC DIAGRAM (E,F)

CAPSTA

◀ REC AUDIO SIGNAL ◁ PB AUDIO SIGNAL

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.


TO MAIN
P4501
PIN- 1 AUDIO R CH 1
PIN- 2 GND 2
PIN- 3 AUDIO L CH 3
PIN- 4 UNSW +14V 4
PIN- 5 AUDIO R CH 5
PIN- 6 GND 6
PIN- 7 AUDIO L CH 7
PIN- 8 SPATIALIZER CTL 8
R4503 47K
R4504 47K
C4501 10/16V
C4502 10/16V
IC4501 AN7395S (SPATIALIZER)
C4513 100/6.3V
C4503 10/16V
C4504 10/16V
C4506 0.056
R4520 1M
C4505 0.039
R4501 22K
R4502 22K
C4507 10/16V
1 AUDIO L CH IN
2 1/2 VCC
3 AUDIO L CH OUT
4
5 AUDIO R CH OUT
6 SET
7 R CH RETURN
8 GND
9 L CH RETURN
10 TIMING
20 GND
19 AUDIO R CH IN
18 FILTER
17 V.REG OUT
16 FILTER
15
14 SPATIALIZER CTL
13 SPATIALIZER CONTROL(H/L/OFF)
12 VCC
11 TIMING
C4508 0.01
R4509 6800
R4510 1500
C4509 0.027
C4511 2.2/50V
R4505 150K
C4519 1/50V
C4512 22/10V
R4515 180 1/4W
C4510 10/16V
C4518 0.1
C4517 100/16V
D4501 MA4091-M (9.1V)
R4519 33K

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

SPATIALIZER VOLTAGE CHART

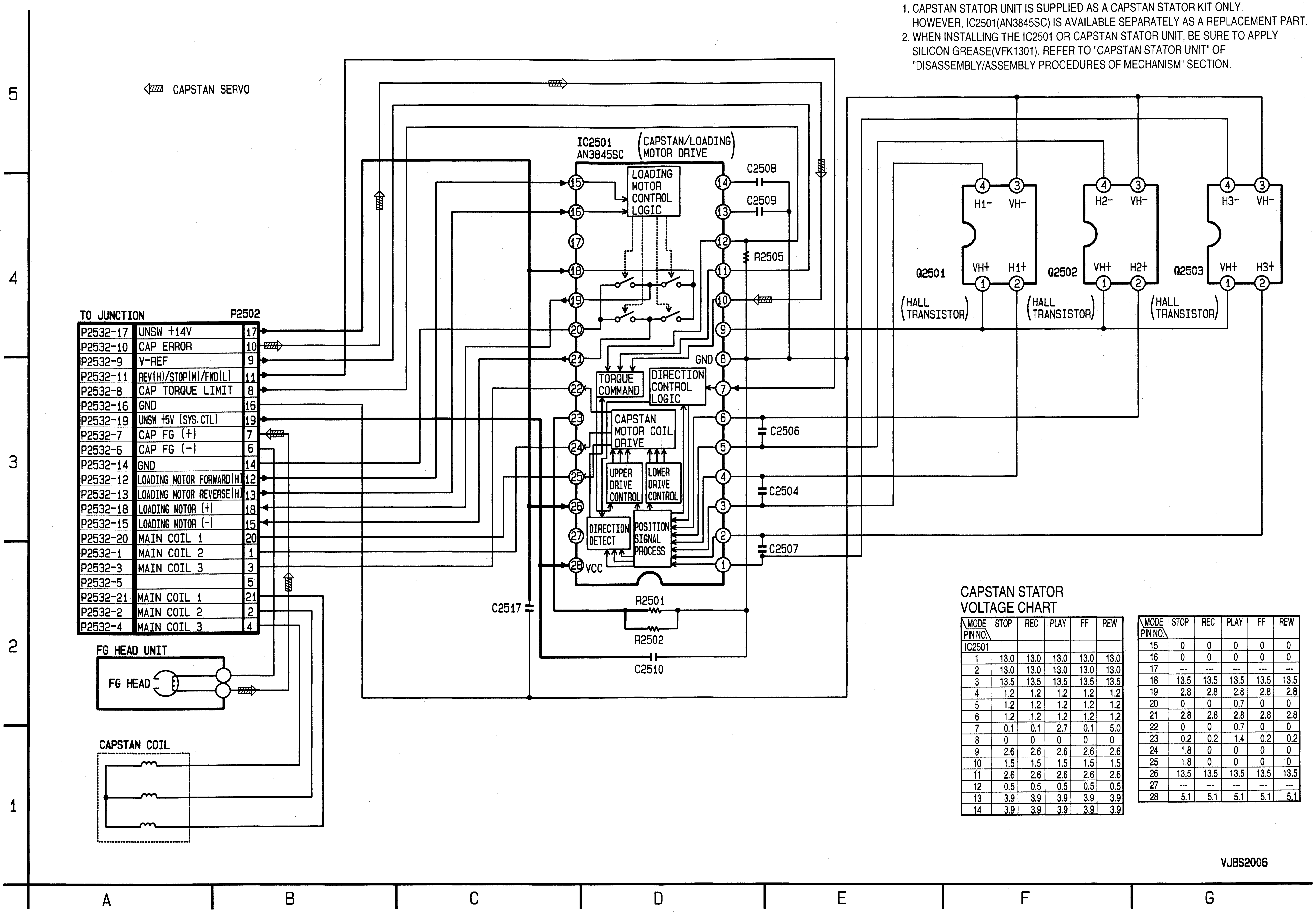
MODE / PIN NO.	REC	PLAY
IC4501		
1	0	0
2	4.8	4.8
3	4.8	4.8
4	---	---
5	4.8	4.8
6	4.8	4.8
7	4.8	4.8
8	0	0
9	4.8	4.8
10	0.8	0.8
11	0.5	0.5
12	9.2	9.2
13	2.2	1.1
14	0	0
15	---	---
16	4.8	4.8
17	5.1	5.1
18	8.4	8.4
19	4.8	4.8
20	0	0

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

VJBS4017

CAPSTAN STATOR SCHEMATIC DIAGRAM

NOTE:
1. CAPSTAN STATOR UNIT IS SUPPLIED AS A CAPSTAN STATOR KIT ONLY. HOWEVER, IC2501(AN3845SC) IS AVAILABLE SEPARATELY AS A REPLACEMENT PART.
2. WHEN INSTALLING THE IC2501 OR CAPSTAN STATOR UNIT, BE SURE TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR UNIT" OF "DISASSEMBLY/ASSEMBLY PROCEDURES OF MECHANISM" SECTION.


5
4
3
2
1
A
B
C
D
E
F
G
CAPSTAN SERVO
IC2501
AN3845SC
(CAPSTAN/LOADING MOTOR DRIVE)
LOADING MOTOR CONTROL LOGIC
TORQUE COMMAND
DIRECTION CONTROL LOGIC
CAPSTAN MOTOR COIL DRIVE
UPPER DRIVE CONTROL
LOWER DRIVE CONTROL
DIRECTION DETECT
POSITION SIGNAL PROCESS
GND
VCC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
C2508
C2509
R2505
C2506
C2504
C2507
C2517
R2501
R2502
C2510
Q2501
Q2502
Q2503
(HALL TRANSISTOR)
(HALL TRANSISTOR)
(HALL TRANSISTOR)
H1-
VH-
VH+
H1+
H2-
VH-
VH+
H2+
H3-
VH-
VH+
H3+
TO JUNCTION
P2502
P2532-17 UNSW +14V 17
P2532-10 CAP ERROR 10
P2532-9 V-REF 9
P2532-11 REV(H)/STOP(M)/FWD(L) 11
P2532-8 CAP TORQUE LIMIT 8
P2532-16 GND 16
P2532-19 UNSW +5V (SYS.CTL) 19
P2532-7 CAP FG (+) 7
P2532-6 CAP FG (-) 6
P2532-14 GND 14
P2532-12 LOADING MOTOR FORWARD(H) 12
P2532-13 LOADING MOTOR REVERSE(H) 13
P2532-18 LOADING MOTOR (+) 18
P2532-15 LOADING MOTOR (-) 15
P2532-20 MAIN COIL 1 20
P2532-1 MAIN COIL 2 1
P2532-3 MAIN COIL 3 3
P2532-5 5
P2532-21 MAIN COIL 1 21
P2532-2 MAIN COIL 2 2
P2532-4 MAIN COIL 3 4
FG HEAD UNIT
FG HEAD
CAPSTAN COIL

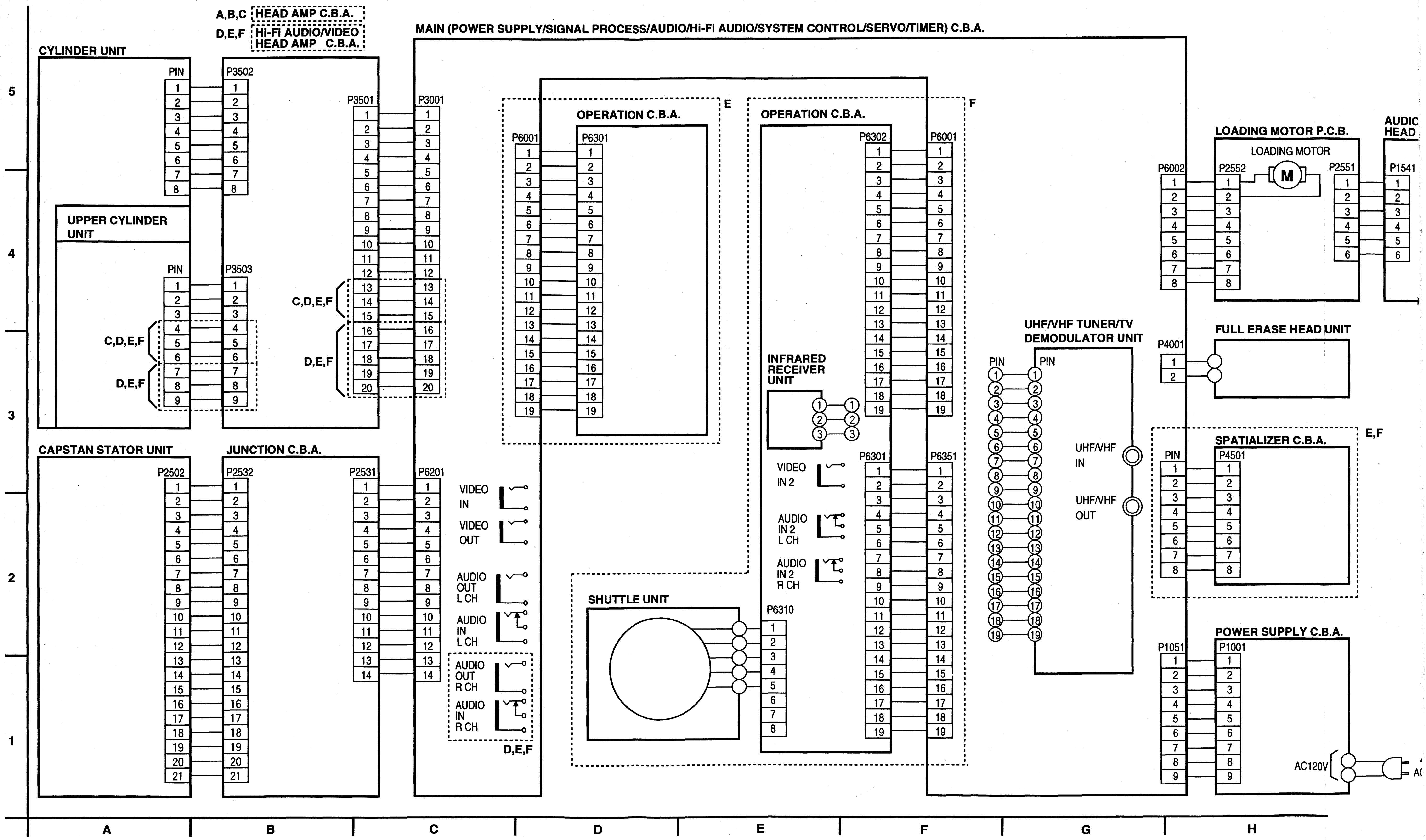
CAPSTAN STATOR
VOLTAGE CHART

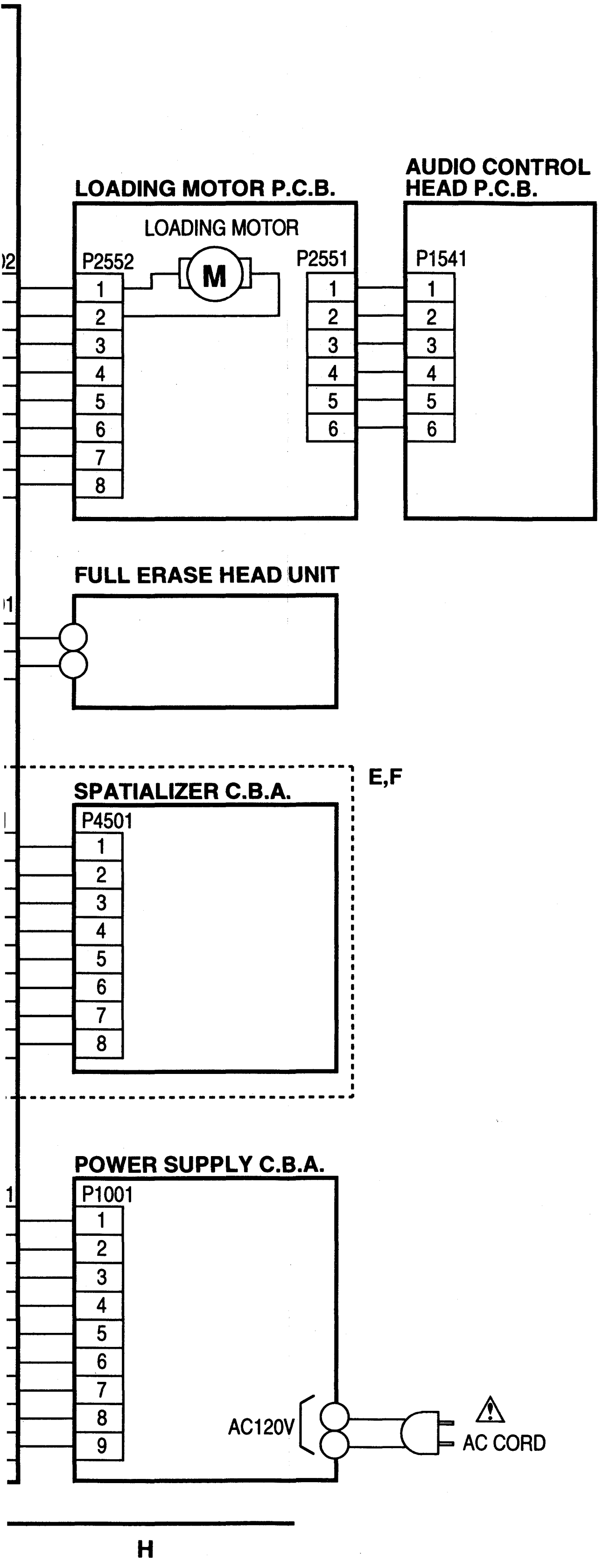
MODE / PIN NO.	STOP	REC	PLAY	FF	REW
IC2501					
1	13.0	13.0	13.0	13.0	13.0
2	13.0	13.0	13.0	13.0	13.0
3	13.5	13.5	13.5	13.5	13.5
4	1.2	1.2	1.2	1.2	1.2
5	1.2	1.2	1.2	1.2	1.2
6	1.2	1.2	1.2	1.2	1.2
7	0.1	0.1	2.7	0.1	5.0
8	0	0	0	0	0
9	2.6	2.6	2.6	2.6	2.6
10	1.5	1.5	1.5	1.5	1.5
11	2.6	2.6	2.6	2.6	2.6
12	0.5	0.5	0.5	0.5	0.5
13	3.9	3.9	3.9	3.9	3.9
14	3.9	3.9	3.9	3.9	3.9

MODE / PIN NO.	STOP	REC	PLAY	FF	REW
15	0	0	0	0	0
16	0	0	0	0	0
17	---	---	---	---	---
18	13.5	13.5	13.5	13.5	13.5
19	2.8	2.8	2.8	2.8	2.8
20	0	0	0.7	0	0
21	2.8	2.8	2.8	2.8	2.8
22	0	0	0.7	0	0
23	0.2	0.2	1.4	0.2	0.2
24	1.8	0	0	0	0
25	1.8	0	0	0	0
26	13.5	13.5	13.5	13.5	13.5
27	---	---	---	---	---
28	5.1	5.1	5.1	5.1	5.1

VJBS2006

INTERCONNECTION SCHEMATIC DIAGRAM


A,B,C HEAD AMP C.B.A.
D,E,F Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.
MAIN (POWER SUPPLY/SIGNAL PROCESS/AUDIO/Hi-Fi AUDIO/SYSTEM CONTROL/SERVO/TIMER) C.B.A.
CYLINDER UNIT
PIN
P3502
P3501
P3001
UPPER CYLINDER UNIT
P3503
C,D,E,F
D,E,F
CAPSTAN STATOR UNIT
P2502
JUNCTION C.B.A.
P2532
P2531
P6201
VIDEO IN
VIDEO OUT
AUDIO OUT L CH
AUDIO IN L CH
AUDIO OUT R CH
AUDIO IN R CH
D,E,F
E
OPERATION C.B.A.
P6001
P6301
F
OPERATION C.B.A.
P6302
P6001
INFRARED RECEIVER UNIT
VIDEO IN 2
AUDIO IN 2 L CH
AUDIO IN 2 R CH
P6301
P6351
SHUTTLE UNIT
P6310
UHF/VHF TUNER/TV DEMODULATOR UNIT
PIN
UHF/VHF IN
UHF/VHF OUT
LOADING MOTOR P.C.B.
LOADING MOTOR
M
P6002
P2552
P2551
AUDIO HEAD
P1541
FULL ERASE HEAD UNIT
P4001
E,F
SPATIALIZER C.B.A.
P4501
POWER SUPPLY C.B.A.
P1051
P1001
AC120V
5
4
3
2
1
A
B
C
D
E
F
G
H


LOADING MOTOR P.C.B.
LOADING MOTOR
P2552
M
P2551
AUDIO CONTROL HEAD P.C.B.
P1541
FULL ERASE HEAD UNIT
SPATIALIZER C.B.A.
P4501
E,F
POWER SUPPLY C.B.A.
P1001
AC120V
⚠
AC CORD
H

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

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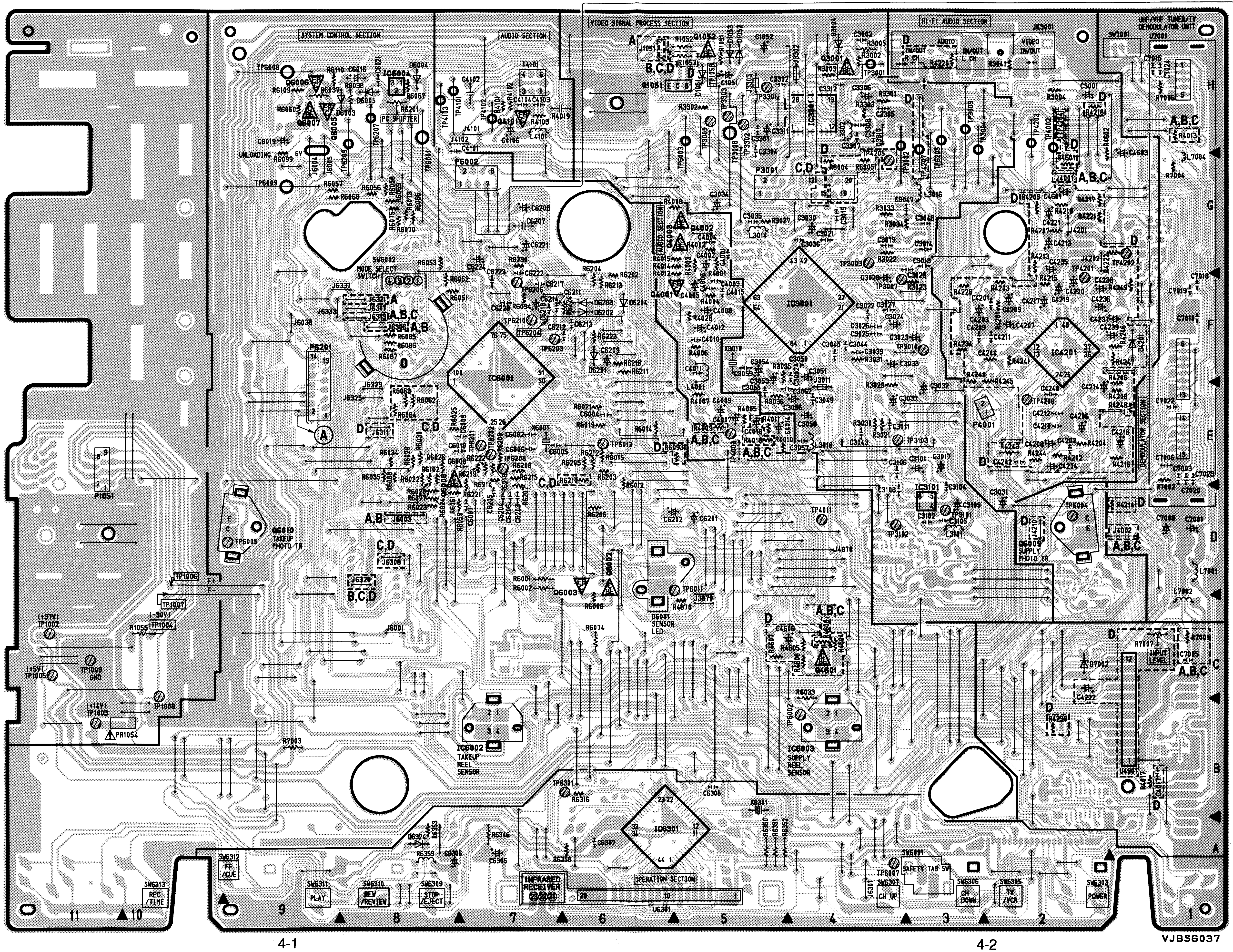
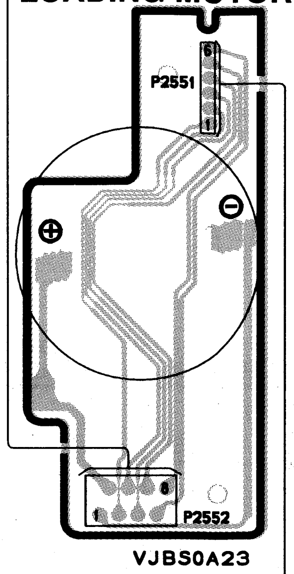
USE ONLY THE SPECIFIED PARTS.

-MEMO-

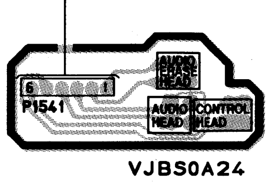
CIRCUIT BOARD LAYOUT
MAIN (POWER SUPPLY/SIGNAL PROCESS/AUDIO/Hi-Fi AUDIO/SYSTEM CONTROL/SERVO/OPERATION) C.B.A VEPS6037AA (A) /VEPS6037AB (B) /VEPS6037GA (C) /VEPS6037HA (D)


SYSTEM CONTROL SECTION
AUDIO SECTION
VIDEO SIGNAL PROCESS SECTION
Hi-Fi AUDIO SECTION
UHF/VHF TUNER/TV DEMODULATOR UNIT
U7001
DEMODULATOR SECTION
OPERATION SECTION
IC6001
IC3001
IC4201
IC6301
IC6002 TAKEUP REEL SENSOR
IC6003 SUPPLY REEL SENSOR
Q6010 TAKEUP PHOTO TR
Q6009 SUPPLY PHOTO TR
D6001 SENSOR LED
MODE SELECT SWITCH
PG SHIFTER
INFRARED RECEIVER
JK3001
AUDIO IN/OUT R CH
IN/OUT L CH
VIDEO IN/OUT
INPUT LEVEL
SAFETY TAB SW
SW6313 REC/TIME
SW6312 FF/CUE
SW6311 PLAY
SW6310 REW/REVIEW
SW6309 STOP/EJECT
SW6307 CH UP
SW6306 CH DOWN
SW6305 TV/VCR
SW6303 POWER
U6301
(+37V) TP1002
(-30V) TP1004
(+5V) TP1005
TP1009 GND
(+14V) TP1003
TP1008
PR1054
UNLOADING
F+
F-
A,B,C
C,D
B,C,D
D
VJBS6037

LOADING MOTOR P.C.B.


P2551
P2552
VJBS0A23

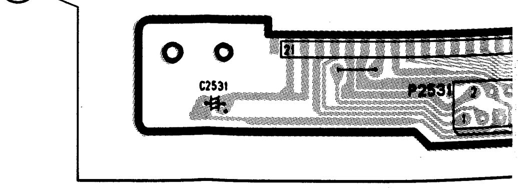
AUDIO CONTROL HEAD P.C.B.


P1541
AUDIO ERASE HEAD
AUDIO HEAD
CONTROL HEAD
VJBS0A24

NOTE:
FOR SCHEN
REFER TO

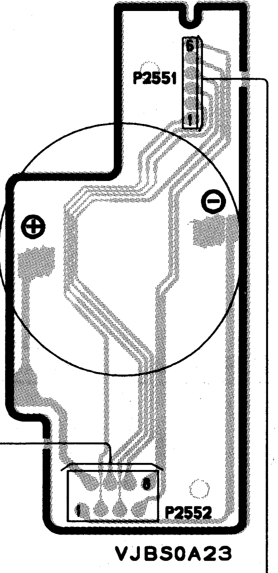
IMPORTANT
COMPONENT
SPECIAL CI
WHEN REPL
USE ONLY

JUNCTION C.B.A. VE

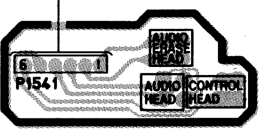

A
C2531
P2531

B (B) /VEPS6037GA (C)
/VEPS6037HA (D)

LOADING MOTOR P.C.B.



AUDIO CONTROL HEAD P.C.B.



COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

NOTE:
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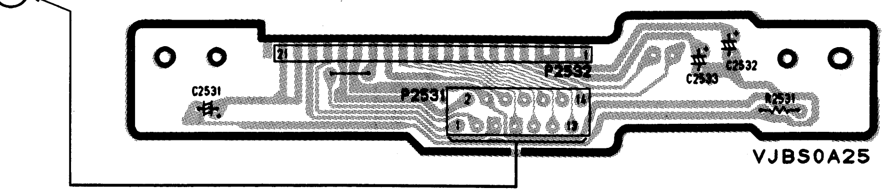
JUNCTION C.B.A. VEPS0A25A



MAIN

TRANSISTOR	
Q1051	H-6
Q1052	H-5
Q3001	H-4
Q4001	F-6
Q4002	G-5
Q4003	G-6
Q4101	H-7
Q4601	C-4
Q6002	D-6
Q6003	D-7
Q6005	H-9
Q6006	H-9
Q6007	H-9
Q6008	D-8
Q6009	D-2
Q6010	D-9

MAIN

IC	
IC3001	F-4
IC3101	D-3
IC3301	H-4
IC4201	F-2
IC6001	F-7
IC6002	B-7
IC6003	B-4
IC6004	H-8
IC6301	A-6

MAIN

CONNECTOR	
P1051	D-11
P3001	G-5
P4001	E-3
P6002	G-7
P6201	F-9

MAIN

ADJUSTMENT	
R6201	H-8
R7007	C-1

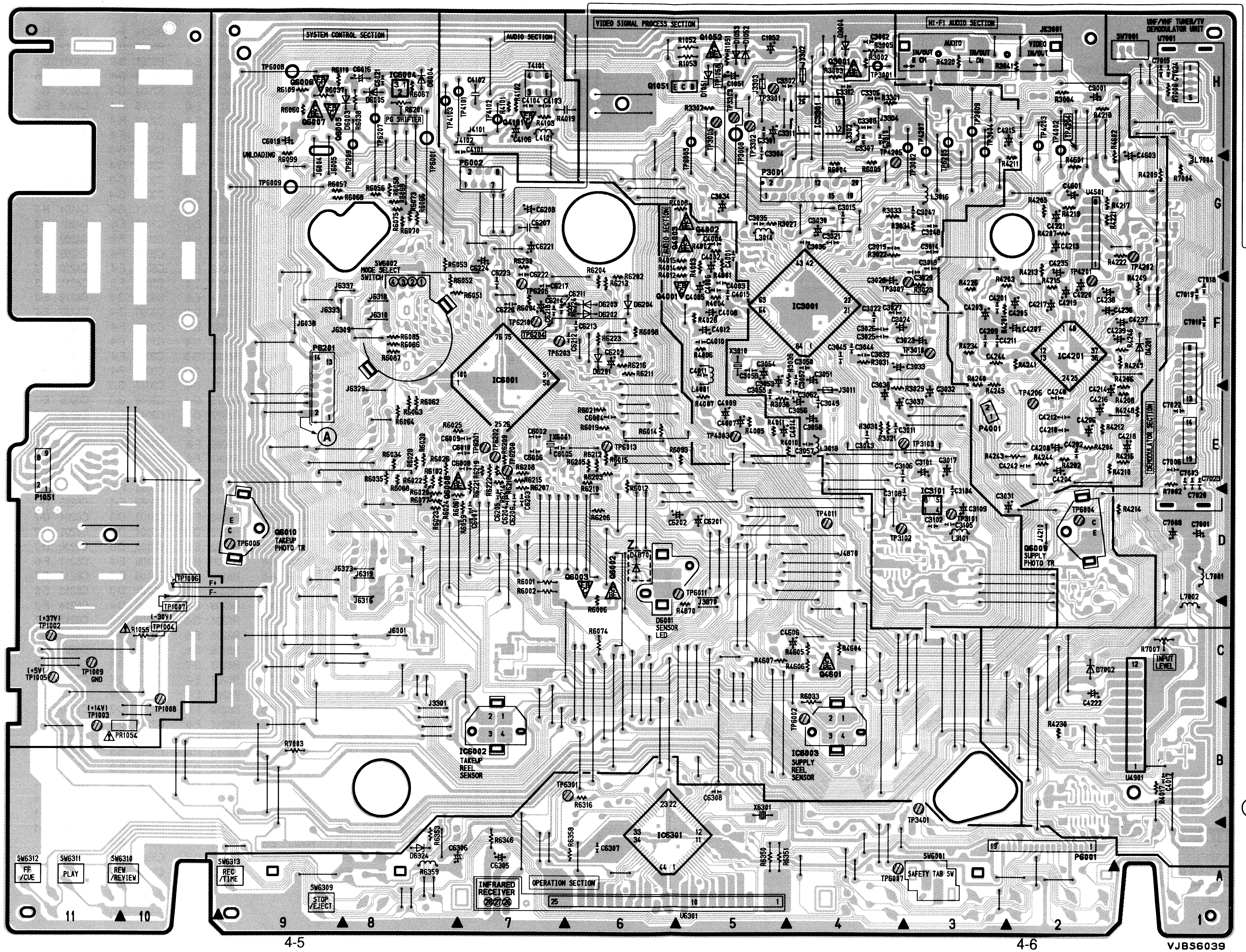
MAIN

TEST POINT	
TP1002	C-11
TP1003	B-11
TP1004	C-10
TP1005	C-11
TP1006	D-10
TP1007	C-10
TP1008	B-10
TP1009	C-11
TP1058	H-5
TP3001	H-4
TP3002	G-3
TP3003	G-4
TP3004	H-3
TP3005	H-5
TP3007	F-4
TP3008	G-5
TP3009	H-3
TP3010	F-4
TP3101	D-3
TP3102	D-4
TP3103	E-3
TP3301	H-5
TP3302	G-5
TP3303	H-5
TP4002	H-2
TP4003	E-5
TP4011	D-4
TP4101	H-7
TP4102	H-7
TP4103	H-8
TP4201	G-2
TP4202	G-1
TP4203	H-2
TP4204	H-2
TP4205	G-4
TP4206	E-2
TP4207	G-3
TP6001	G-8
TP6002	B-4
TP6003	G-5
TP6004	D-2
TP6005	D-9
TP6007	A-4
TP6008	H-9
TP6009	G-9
TP6011	D-5
TP6013	E-6
TP6201	E-7
TP6202	E-7
TP6203	F-7
TP6204	F-7
TP6205	G-3
TP6206	F-7
TP6207	H-8
TP6208	E-7
TP6209	G-8
TP6210	F-7
TP6301	B-7

LEADLESS COMPONENT PARTS LOCATION GUIDE
MAIN C.B.A.

Q1052	H-5	R4201	F-2	R6034	E-8	R6230	G-7	C4011	F-5
Q3001	H-4	R4202	E-2	R6035	E-8	R6316	B-6	C4015	F-5
Q4001	F-6	R4203	F-2	R6051	F-8	R6353	A-8	C4017	B-1
Q4002	G-5	R4204	E-2	R6052	F-8	R6358	A-7	C4101	H-7
Q4003	G-6	R4205	G-2	R6053	G-8	R7001	C-1	C4103	H-7
Q4101	H-7	R4206	F-1	R6056	G-8	R7002	D-1	C4104	H-7
Q4601	C-4	R4207	G-2	R6057	G-9	R7004	G-1	C4201	F-3
Q6002	D-6	R4208	E-1	R6058	G-8	R7006	H-1	C4202	E-2
Q6003	D-7	R4213	G-2	R6059	D-7	C3002	H-4	C4209	F-3
Q6005	H-9	R4214	D-1	R6060	H-9	C3011	E-4	C4210	E-2
Q6006	H-9	R4215	F-2	R6061	D-8	C3014	G-3	C4211	F-2
Q6007	H-9	R4216	E-1	R6062	E-8	C3015	G-4	C4212	E-2
Q6008	D-8	R4217	G-2	R6063	E-8	C3018	G-3	C4240	E-2
R1051	H-5	R4218	H-2	R6064	E-8	C3019	G-4	C4242	E-2
R3002	H-4	R4219	G-2	R6066	G-8	C3021	G-4	C4244	F-3
R3003	H-4	R4220	H-3	R6067	H-8	C3022	F-4	C6002	E-7
R3004	H-2	R4221	G-2	R6068	G-8	C3025	F-4	C6004	E-6
R3021	E-4	R4222	G-2	R6069	G-8	C3026	F-4	C6005	E-7
R3022	G-4	R4226	F-3	R6070	G-8	C3027	F-4	C6006	E-7
R3023	F-3	R4230	B-2	R6073	G-8	C3029	G-3	C6007	D-7
R3027	G-5	R4234	F-3	R6075	G-8	C3035	G-5	C6008	E-8
R3029	E-4	R4240	F-3	R6077	D-8	C3036	G-4	C6009	E-7
R3030	E-4	R4241	F-2	R6085	F-8	C3039	F-4	C6010	E-8
R3031	F-4	R4244	E-2	R6086	F-8	C3043	E-4	C6021	H-8
R3033	G-4	R4245	F-2	R6087	F-8	C3044	F-4	C6203	D-7
R3034	G-4	R4246	F-1	R6088	D-8	C3045	F-4	C6204	D-7
R3035	F-5	R4247	F-1	R6093	E-6	C3047	G-4	C6205	D-7
R3036	E-5	R4248	E-1	R6094	F-7	C3048	G-3	C6206	D-7
R3041	H-2	R4249	F-1	R6099	G-9	C3049	E-4	C6211	F-6
R3301	H-4	R4601	G-2	R6102	E-8	C3050	F-4	C6212	F-7
R3302	H-5	R4602	H-2	R6109	H-9	C3052	E-4	C6213	F-6
R3303	H-4	R4604	C-4	R6110	H-9	C3055	E-5	C6214	F-7
R4001	G-5	R4605	C-5	R6202	F-6	C3057	E-4	C6217	F-7
R4002	G-5	R4606	C-4	R6203	E-6	C3059	F-5	C6222	G-7
R4003	G-5	R4607	C-5	R6204	G-6	C3062	E-4	C6223	F-7
R4004	F-5	R4608	C-4	R6205	E-6	C3102	D-3	C6228	F-7
R4005	E-5	R4870	C-5	R6206	D-6	C3104	D-3	C6307	A-6
R4006	F-5	R6004	G-4	R6207	D-7	C3105	D-3	C6308	B-5
R4007	E-5	R6005	G-4	R6208	E-7	C3106	E-4	C7003	E-1
R4008	G-6	R6006	C-6	R6209	E-7	C3108	D-4	C7005	C-1
R4009	E-5	R6012	E-6	R6210	E-6	C3301	H-5	C7006	E-1
R4010	E-5	R6014	E-6	R6211	F-6	C3302	H-5	C7010	F-1
R4011	E-5	R6015	E-6	R6212	E-6	C3304	H-5	C7015	H-1
R4012	G-6	R6019	E-6	R6213	F-6	C3305	H-4	C7018	F-1
R4013	H-1	R6020	D-8	R6214	E-7	C3307	H-4	C7019	F-1
R4014	G-6	R6021	E-6	R6215	E-7	C3308	H-4	C7020	D-1
R4015	G-6	R6022	E-8	R6216	F-6	C3310	H-4	C7022	E-1
R4017	B-1	R6023	D-8	R6218	D-7	C3312	H-4	C7023	E-1
R4018	E-5	R6024	D-8	R6219	E-7	C4001	G-5	C7024	H-1
R4028	F-5	R6025	E-8	R6221	D-7	C4003	F-5	L7004	G-1
R4101	H-7	R6026	E-8	R6222	E-7	C4004	G-5		
R4102	H-7	R6029	E-8	R6223	F-6	C4006	F-5		
R4103	H-7	R6030	E-8	R6224	F-6	C4010	F-5		

MAIN (POWER SUPPLY/SIGNAL PROCESS/AUDIO/Hi-Fi AUDIO/SYSTEM CONTROL/SERVO/OPERATION) C.B.A. VEPS6039HA (E)


SYSTEM CONTROL SECTION
AUDIO SECTION
VIDEO SIGNAL PROCESS SECTION
Hi-Fi AUDIO SECTION
VHF/UHF TUNER/TV DEMODULATOR UNIT
DEMODULATOR SECTION
OPERATION SECTION
IC6001
IC3001
IC4201
IC6301
IC3101
IC6002 TAKEUP REEL SENSOR
IC6003 SUPPLY REEL SENSOR
Q6010 TAKEUP PHOTO TR
Q6009 SUPPLY PHOTO TR
D6001 SENSOR LED
SW6002 MODE SELECT SWITCH
PG SHIFTER
UNLOADING
INFRARED RECEIVER
INPUT LEVEL
SAFETY TAB SW
JK3001
AUDIO IN/OUT
VIDEO IN/OUT
U7001
U6301
U4901
P6001
SW6312 FF /CUE
SW6311 PLAY
SW6310 REW /REVIEW
SW6313 REC /TIME
SW6309 STOP /EJECT
(+37V) TP1002
(-30V) TP1004
(+5V) TP1005
TP1009 GND
(+14V) TP1003
TP1008
P1051
PR1054
R1055
A
H
G
F
E
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A
11
10
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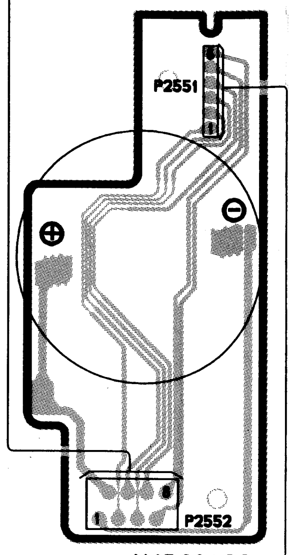
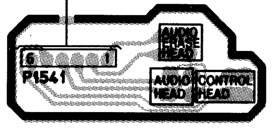
VJBS6039

LOADING MOTOR P.C.B.


P2551
P2552
⊕
⊖
VJBS0A23

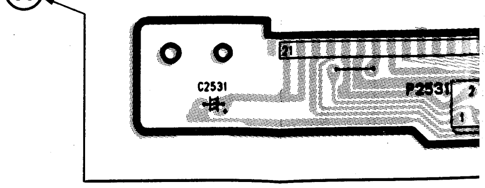
AUDIO CONTROL HEAD P.C.B.


P1541
AUDIO ERASE HEAD
AUDIO HEAD
CONTROL HEAD
VJBS0A24

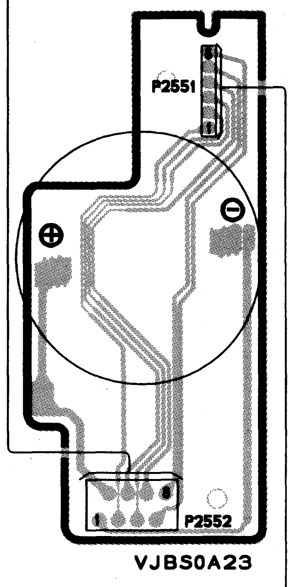
NOTE:
FOR SCHEMATIC DIAGRA
REFER TO BEGINNING O

IMPORTANT SAFETY NOTI
COMPONENTS IDENTIFIED
SPECIAL CHARACTERISTI
WHEN REPLACING ANY OF
USE ONLY THE SPECIFIE

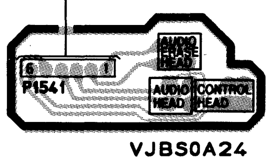
JUNCTION C.B.A. V


C2531
P2531

LOADING MOTOR P.C.B.



AUDIO CONTROL HEAD P.C.B.



COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

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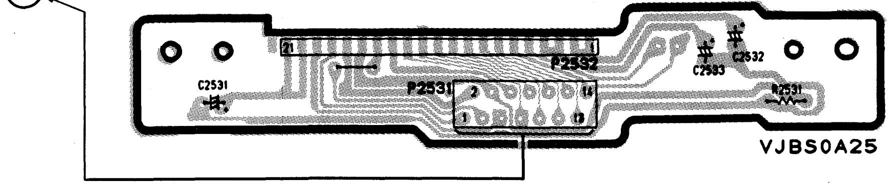
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

JUNCTION C.B.A. VEPS0A25A



MAIN	
TRANSISTOR	
Q1051	H-6
Q1052	H-5
Q3001	H-4
Q4001	F-6
Q4002	G-5
Q4003	G-6
Q4101	H-7
Q4601	C-4
Q6002	D-6
Q6003	D-6
Q6005	H-9
Q6006	H-9
Q6007	H-9
Q6008	D-8
Q6009	D-2
Q6010	D-9

MAIN	
IC	
IC3001	F-4
IC3101	D-3
IC3301	H-4
IC4201	F-2
IC6001	F-7
IC6002	B-7
IC6003	B-4
IC6004	H-8
IC6301	A-6

MAIN	
CONNECTOR	
P1051	D-11
P3001	G-5
P4001	E-3
P6001	A-2
P6002	G-7
P6201	F-9

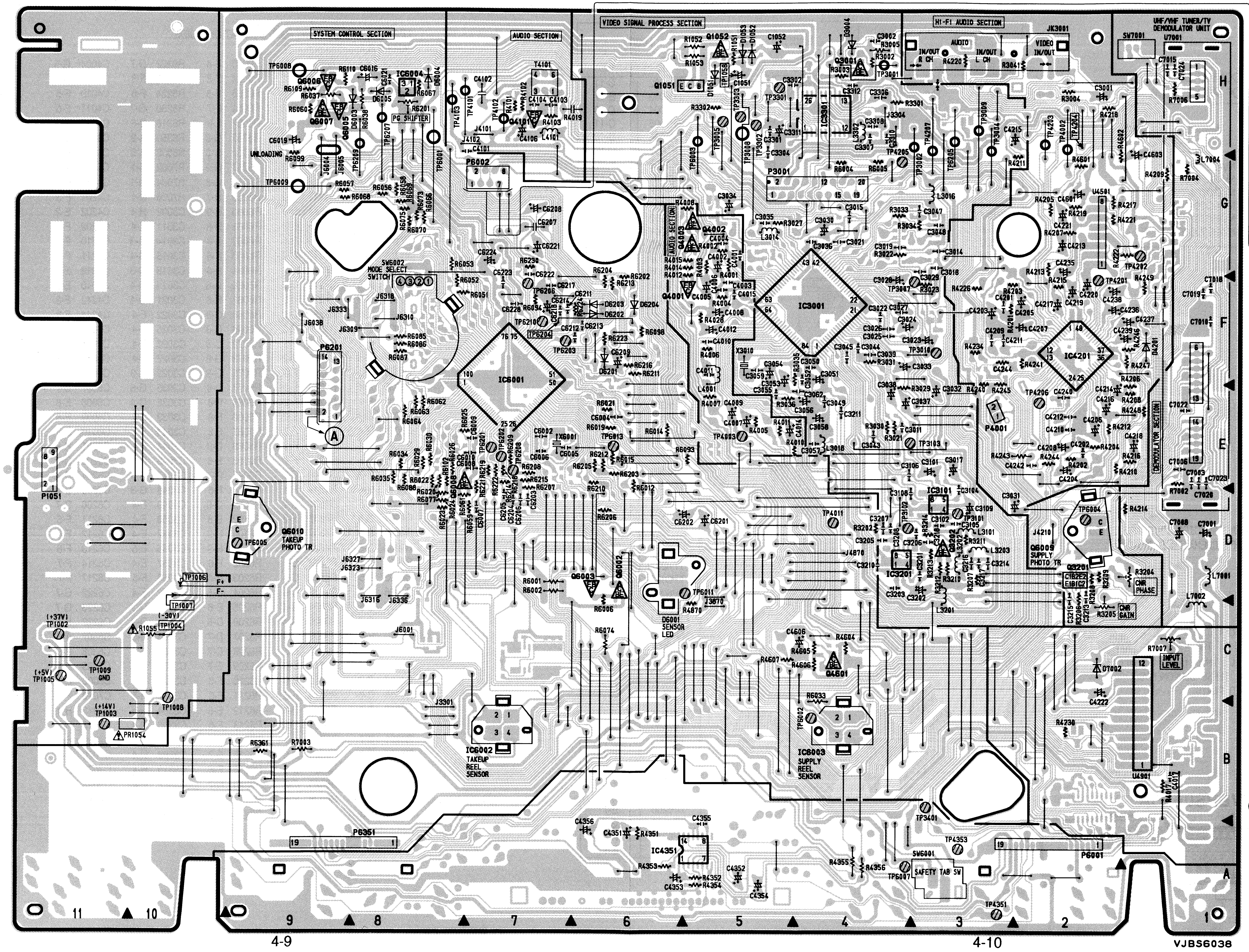
MAIN	
ADJUSTMENT	
R6201	H-8
R7007	C-1

MAIN	
TEST POINT	
TP1002	C-11
TP1003	B-11
TP1004	C-10
TP1005	C-11
TP1006	D-10
TP1007	C-10
TP1008	B-10
TP1009	C-11
TP1058	H-5
TP3001	H-4
TP3002	G-3
TP3004	H-3
TP3005	H-5
TP3007	F-4
TP3008	G-5
TP3009	H-3
TP3010	F-3
TP3101	D-3
TP3102	D-4
TP3103	E-3
TP3301	H-5
TP3302	G-5
TP3303	H-5
TP3401	B-3
TP4002	H-2
TP4003	E-5
TP4011	D-4
TP4101	H-7
TP4102	H-7
TP4103	H-8
TP4201	G-2
TP4202	G-1
TP4203	H-2
TP4204	H-2
TP4205	H-4
TP4206	E-2
TP4207	H-3
TP6001	G-8
TP6002	B-4
TP6003	G-5
TP6004	D-2
TP6005	D-9
TP6007	A-4
TP6008	H-9
TP6009	G-9
TP6011	D-5
TP6013	E-6
TP6201	E-7
TP6202	E-7
TP6203	F-7
TP6204	F-7
TP6205	G-3
TP6206	F-7
TP6207	H-8
TP6208	E-7
TP6209	G-8
TP6210	F-7
TP6301	B-7

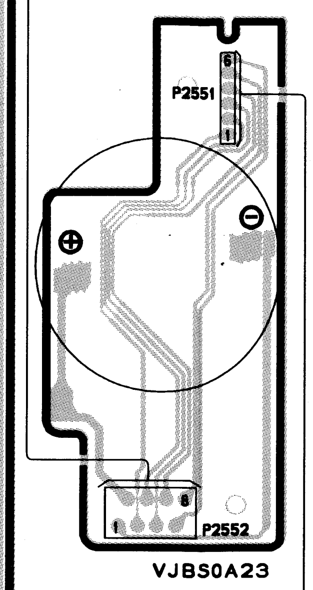
LEADLESS COMPONENT PARTS LOCATION GUIDE
MAIN C.B.A.

Q1052	H-5
Q3001	H-4
Q4001	F-6
Q4002	G-5
Q4003	G-6
Q4101	H-7
Q4601	C-4
Q6002	D-6
Q6003	D-6
Q6005	H-9
Q6006	H-9
Q6007	H-9
Q6008	D-8
R1051	H-5
R3002	H-4
R3003	H-4
R3004	H-2
R3021	E-4
R3022	G-4
R3023	F-3
R3027	G-5
R3029	E-3
R3030	E-4
R3031	F-4
R3033	G-4
R3034	G-4
R3035	F-4
R3036	E-5
R3041	H-3
R3301	H-4
R3302	H-5
R4001	G-5
R4002	G-5
R4003	G-5
R4004	F-5
R4005	E-5
R4006	F-5
R4007	E-5
R4008	G-6
R4010	E-5
R4011	E-5
R4012	G-6
R4014	G-6
R4015	G-6
R4017	B-1
R4028	F-5
R4101	H-7
R4102	H-7
R4103	H-7
R4201	F-3
R4202	E-2
R4203	F-3
R4204	E-2
R4205	G-2
R4206	F-1
R4207	G-2
R4208	E-1
R4209	G-1
R4210	E-2
R4211	G-3
R4212	E-2
R4213	G-2
R4214	D-1
R4215	F-2
R4216	E-1
R4217	G-2
R4218	H-2
R4219	G-2
R4220	H-3
R4221	G-2
R4222	G-2
R4226	F-3
R4230	B-2
R4234	F-3
R4240	F-3
R4241	F-2
R4244	E-2
R4245	F-3
R4246	F-1
R4247	F-1
R4248	E-1
R4249	F-1
R4601	G-2
R4602	H-2
R4604	C-4
R4605	C-4
R4606	C-4
R4607	C-5
R4870	C-5
R6004	G-4
R6005	G-4
R6006	C-6
R6012	E-6
R6014	E-6
R6015	E-6
R6019	E-6
R6020	D-8
R6021	E-6
R6022	E-8
R6023	D-8
R6024	D-8
R6025	E-8
R6026	E-8
R6029	E-8
R6030	E-8
R6034	E-8
R6035	E-8
R6051	F-7
R6052	F-8
R6053	G-8
R6056	G-8
R6057	G-9
R6058	G-8
R6059	D-7
R6060	H-9
R6061	D-8
R6062	E-8
R6063	E-8
R6064	E-8
R6066	G-8
R6067	H-8
R6068	G-8
R6069	G-8
R6070	G-8
R6073	G-8
R6075	G-8
R6077	D-8
R6085	F-8
R6086	F-8
R6087	F-8
R6088	D-8
R6093	E-6
R6094	F-7
R6098	F-6
R6099	G-9
R6102	E-8
R6109	H-9
R6110	H-9
R6202	F-6
R6203	E-6
R6204	G-6
R6205	E-6
R6206	D-6
R6207	D-7
R6208	E-7
R6209	E-7
R6210	F-6
R6211	F-6
R6212	E-6
R6213	F-6
R6214	D-7
R6215	E-7
R6216	F-6
R6218	D-7
R6219	E-7
R6221	D-7
R6222	D-7
R6223	F-6
R6224	F-6
R6230	G-7
R6316	B-6
R6353	A-8
R6358	A-6
R7002	D-1
R7004	G-1
R7006	H-1
C3002	H-4
C3011	E-4
C3014	G-3
C3015	G-4
C3018	G-3
C3019	G-4
C3021	G-4
C3022	F-4
C3025	F-4
C3026	F-4
C3027	F-4
C3029	G-3
C3035	G-5
C3036	G-4
C3039	F-4
C3043	E-4
C3044	F-4
C3045	F-4
C3047	G-3
C3048	G-3
C3049	E-4
C3050	F-4
C3052	E-4
C3055	E-5
C3057	E-4
C3059	F-5
C3062	E-4
C3102	D-3
C3104	D-3
C3105	D-3
C3106	E-4
C3108	D-4
C3301	H-5
C3302	H-5
C3304	H-5
C3306	H-4
C3307	H-4
C3308	H-4
C3310	H-4
C3312	H-4
C4001	G-5
C4003	F-5
C4004	G-5
C4006	F-5
C4010	F-5
C4011	F-5
C4015	F-5
C4017	B-1
C4101	H-7
C4103	H-7
C4104	H-7
C4201	F-3
C4202	E-2
C4209	F-3
C4210	E-2
C4211	F-3
C4212	E-2
C4240	E-2
C4242	E-3
C4244	F-3
C6002	E-7
C6004	E-6
C6005	E-7
C6006	E-7
C6007	D-7
C6008	E-8
C6009	E-8
C6010	E-8
C6021	H-8
C6203	D-7
C6204	D-7
C6205	D-7
C6206	D-7
C6211	F-6
C6212	F-6
C6213	F-6
C6214	F-7
C6217	F-7
C6222	G-7
C6223	G-7
C6228	F-7
C6307	A-6
C6308	B-5
C7003	E-1
C7006	E-1
C7010	F-1
C7015	H-1
C7018	F-1
C7019	F-1
C7020	D-1
C7022	E-1
C7023	E-1
C7024	H-1
L7004	G-1

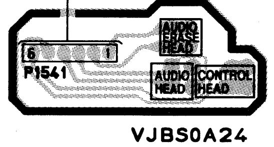
MAIN (POWER SUPPLY/SIGNAL PROCESS/AUDIO/Hi-Fi AUDIO/SYSTEM CONTROL/SERVO) C.B.A. VEPS6038HA (F)


SYSTEM CONTROL SECTION
AUDIO SECTION
VIDEO SIGNAL PROCESS SECTION
Hi-Fi AUDIO SECTION
UHF/VHF TUNER/TV DEMODULATOR UNIT
DEMODULATOR SECTION
IC6001
IC3001
IC4201
IC3101
IC3201
IC4351
IC6002 TAKEUP REEL SENSOR
IC6003 SUPPLY REEL SENSOR
Q6010 TAKEUP PHOTO TR
Q6009 SUPPLY PHOTO TR
D6001 SENSOR LED
SW6002 MODE SELECT SWITCH
SW6001 SAFETY TAB SW
PG SHIFTER
CNR PHASE
CNR GAIN
INPUT LEVEL
JK3001
AUDIO IN/OUT R CH
IN/OUT L CH
VIDEO IN/OUT
U7001
SW7001
U4501
U4901
P6002
P6201
P3001
P4001
P6351
P6001
P1051
TP1002 (+37V)
TP1004 (-30V)
TP1005 (+5V)
TP1009 GND
TP1003 (+14V)
TP1006
TP1007
TP1008
R1055
PR1054
UNLOADING
F+
F-
A
H
G
F
E
D
C
B
A
11
10
9
8
7
6
5
4
3
2
1
VJBS6038

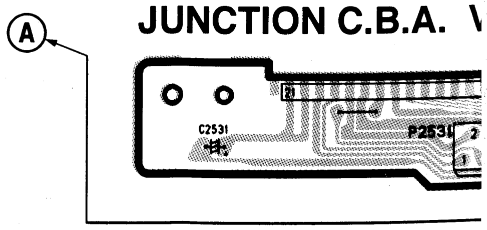
LOADING MOTOR P.C.B.


P2551
P2552
VJBS0A23

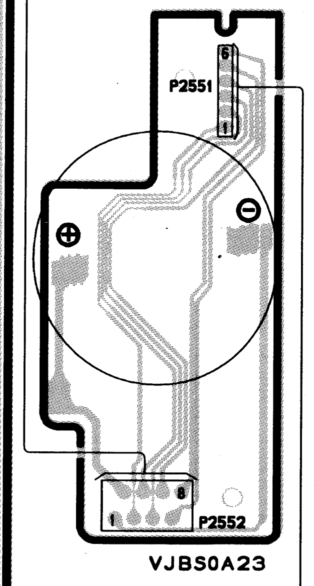
AUDIO CONTROL HEAD P.C.B.


P1541
AUDIO ERASE HEAD
AUDIO HEAD
CONTROL HEAD
VJBS0A24

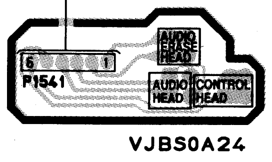
JUNCTION C.B.A.


A
C2531
P2531

LOADING MOTOR P.C.B.



AUDIO CONTROL HEAD P.C.B.



COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

MAIN	
TRANSISTOR	
Q1051	H-6
Q1052	H-5
Q3001	H-4
Q3201	D-2
Q3202	D-3
Q4001	F-6
Q4002	G-5
Q4003	G-6
Q4101	H-7
Q4601	C-4
Q6002	D-6
Q6003	D-6
Q6005	H-9
Q6006	H-9
Q6007	H-9
Q6008	D-8
Q6009	D-2
Q6010	D-9

MAIN	
IC	
IC3001	F-4
IC3101	D-3
IC3201	D-4
IC3301	H-4
IC4201	F-2
IC4351	A-6
IC6001	F-7
IC6002	B-7
IC6003	B-4
IC6004	H-8

MAIN	
CONNECTOR	
P1051	D-11
P3001	G-5
P4001	E-3
P6001	A-2
P6002	G-7
P6201	F-9
P6351	A-8

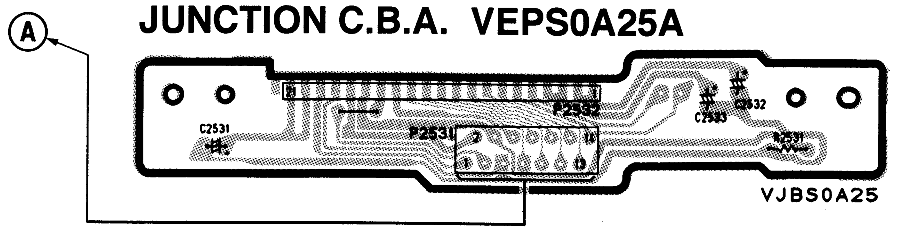
MAIN	
ADJUSTMENT	
R3204	D-1
R3205	C-2
R6201	H-8
R7007	C-1

MAIN	
TEST POINT	
TP1002	C-11
TP1003	B-11
TP1004	C-10
TP1005	C-11
TP1006	D-10
TP1007	C-10
TP1008	B-10
TP1009	C-11
TP1058	H-5
TP3001	H-4
TP3002	G-3
TP3004	H-3
TP3005	H-5
TP3007	F-4
TP3008	G-5
TP3009	H-3
TP3010	F-3
TP3101	D-3
TP3102	D-4
TP3103	E-3
TP3301	H-5
TP3302	G-5
TP3303	H-5
TP3401	B-3
TP4002	H-2
TP4003	E-5
TP4011	D-4
TP4101	H-7
TP4102	H-7
TP4103	H-8
TP4201	F-2
TP4202	G-1
TP4203	H-2
TP4204	H-2
TP4205	H-4
TP4206	E-2
TP4207	H-3
TP4351	A-3
TP4353	A-3
TP6001	G-8
TP6002	B-4
TP6003	G-5
TP6004	D-2
TP6005	D-9
TP6007	A-4
TP6008	H-9
TP6009	G-9
TP6011	D-5
TP6013	E-6
TP6201	E-7
TP6202	E-7
TP6203	F-7
TP6204	F-7
TP6205	G-3
TP6206	F-7
TP6207	H-8
TP6208	E-7
TP6209	G-8
TP6210	F-7

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

JUNCTION C.B.A. VEPS0A25A

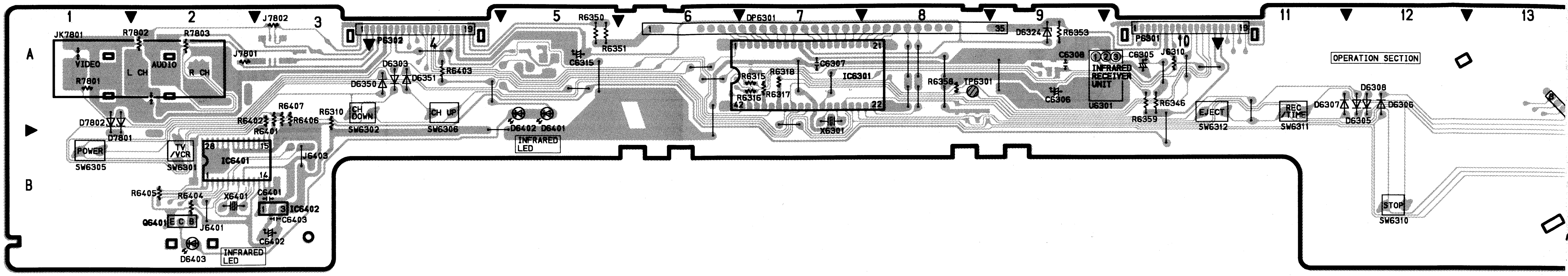


LEADLESS COMPONENT PARTS LOCATION GUIDE
MAIN C.B.A.

Q1052	H-5	R4101	H-7	R6024	D-8	R6224	F-6	C3310	H-4
Q3001	H-4	R4102	H-7	R6025	E-7	R6230	G-7	C3312	H-4
Q3201	D-2	R4103	H-7	R6026	E-8	R6361	B-9	C4001	G-5
Q3202	D-3	R4201	F-2	R6029	E-8	R7002	D-1	C4003	F-5
Q4001	F-6	R4202	E-2	R6030	E-8	R7004	G-1	C4004	G-5
Q4002	G-5	R4203	F-2	R6034	E-8	R7006	H-1	C4006	F-5
Q4003	G-6	R4204	E-2	R6035	E-8	C3002	H-4	C4010	F-5
Q4101	H-7	R4205	G-2	R6051	F-7	C3011	E-4	C4011	F-5
Q4601	C-4	R4206	F-1	R6052	F-8	C3014	G-3	C4015	F-5
Q6002	D-6	R4207	G-2	R6053	G-8	C3015	G-4	C4017	B-1
Q6003	D-6	R4208	E-1	R6056	G-8	C3018	G-3	C4101	H-7
Q6005	H-9	R4209	G-1	R6057	G-9	C3019	G-4	C4103	H-7
Q6006	H-9	R4210	E-2	R6058	G-8	C3021	G-4	C4104	H-7
Q6007	H-9	R4211	G-3	R6059	D-7	C3022	F-4	C4201	F-3
Q6008	D-8	R4212	E-2	R6060	H-9	C3025	F-4	C4202	E-2
R1051	H-5	R4213	G-2	R6061	D-8	C3026	F-4	C4209	F-3
R3002	H-4	R4214	D-1	R6062	E-8	C3027	F-4	C4210	E-2
R3003	H-4	R4215	F-2	R6063	E-8	C3029	F-3	C4211	F-3
R3004	H-2	R4216	E-1	R6064	E-8	C3035	G-5	C4212	E-2
R3021	E-4	R4217	G-2	R6066	G-8	C3036	G-4	C4240	E-2
R3022	G-4	R4218	H-2	R6067	H-8	C3039	F-4	C4242	E-3
R3023	F-3	R4219	G-2	R6068	G-8	C3043	E-4	C4244	F-3
R3027	G-5	R4220	H-3	R6069	G-8	C3044	F-4	C4355	A-5
R3029	E-3	R4221	G-2	R6070	G-8	C3045	F-4	C6002	E-7
R3030	E-4	R4222	G-2	R6073	G-8	C3047	G-3	C6004	E-6
R3031	F-4	R4226	F-3	R6075	G-8	C3048	G-3	C6005	E-7
R3033	G-4	R4230	B-2	R6077	D-8	C3049	E-4	C6006	E-7
R3034	G-4	R4234	F-3	R6085	F-8	C3050	F-4	C6007	D-7
R3035	F-5	R4240	E-3	R6086	F-8	C3052	E-4	C6008	E-8
R3036	E-5	R4241	F-2	R6087	F-8	C3055	E-5	C6009	E-7
R3041	H-3	R4244	E-2	R6088	D-8	C3057	E-4	C6010	E-8
R3202	D-4	R4245	E-3	R6093	E-6	C3059	F-5	C6021	H-8
R3206	C-2	R4246	F-1	R6094	F-7	C3062	E-4	C6203	D-7
R3207	D-3	R4247	F-1	R6098	F-6	C3102	D-3	C6204	D-7
R3208	C-2	R4248	E-1	R6099	G-9	C3104	D-3	C6205	D-7
R3209	D-2	R4249	F-1	R6102	E-8	C3105	D-3	C6206	D-7
R3210	D-3	R4351	A-6	R6109	H-9	C3106	E-4	C6211	F-6
R3211	D-3	R4352	A-5	R6110	H-9	C3108	D-4	C6212	F-7
R3212	D-3	R4353	A-6	R6202	F-6	C3201	D-3	C6213	F-6
R3213	D-3	R4354	A-5	R6203	E-6	C3203	D-4	C6214	F-7
R3214	D-3	R4601	G-2	R6204	G-6	C3205	D-4	C6217	F-7
R3301	H-4	R4602	H-2	R6205	E-6	C3206	D-4	C6222	G-7
R3302	H-5	R4604	C-4	R6206	D-6	C3207	D-4	C6223	G-7
R4001	G-5	R4605	C-4	R6207	D-7	C3208	D-4	C6228	F-7
R4002	G-5	R4606	C-4	R6208	E-7	C3210	D-4	C7003	E-1
R4003	G-5	R4607	C-5	R6209	E-7	C3211	E-4	C7006	E-1
R4004	F-5	R4870	C-5	R6210	F-6	C3213	C-2	C7010	F-1
R4005	E-5	R6004	G-4	R6211	F-6	C3214	D-3	C7015	H-1
R4006	F-5	R6005	G-4	R6212	E-6	C3215	C-2	C7018	F-1
R4007	E-5	R6006	C-6	R6213	F-6	C3216	D-3	C7019	F-1
R4008	G-6	R6012	E-6	R6214	D-7	C3217	D-3	C7020	D-1
R4010	E-5	R6014	E-6	R6215	E-7	C3218	D-3	C7022	E-1
R4011	E-5	R6015	E-6	R6216	F-6	C3301	H-5	C7023	E-1
R4012	G-6	R6019	E-6	R6218	D-7	C3302	H-5	C7024	H-1
R4014	G-6	R6020	D-8	R6219	E-7	C3304	H-5	L7004	G-1
R4015	G-6	R6021	E-6	R6221	D-7	C3306	H-4		
R4017	B-1	R6022	E-8	R6222	D-7	C3307	H-4		
R4028	F-5	R6023	D-8	R6223	F-6	C3308	H-4		

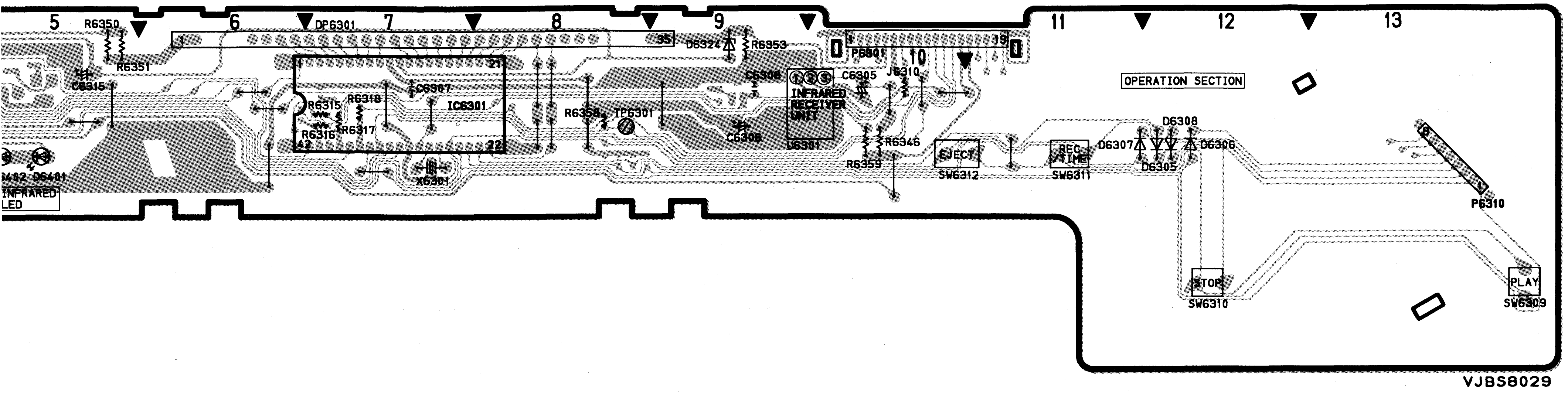
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BO
REFER TO BEGINNING OF SCHEMATIC SECT

OPERATION C.B.A. VEPS8029A (F)



1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
JK7801
R7802
R7803
J7802
VIDEO
L CH
AUDIO
R CH
R7801
J7801
D7802
D7801
POWER
SW6305
TV /VCR
SW6301
IC6401
28
15
1
14
R6405
R6404
X6401
C6401
IC6402
Q6401
E C B
J6401
C6403
C6402
D6403
INFRARED LED
P6302
D6303
D6350
D6351
R6403
R6407
R6402
R6406
R6401
R6410
J6403
CH DOWN
SW6302
CH UP
SW6306
D6402
D6401
R6350
R6351
C6315
DP6301
35
IC6301
21
22
42
R6315
R6318
R6316
R6317
C6307
X6301
R6358
TP6301
D6324
R6353
P6301
C6308
C6305
J6310
INFRARED RECEIVER UNIT
U6301
C6306
R6346
R6359
EJECT
SW6312
REC /TIME
SW6311
OPERATION SECTION
D6308
D6307
D6306
D6305
STOP
SW6310

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.


5
6
7
8
9
10
11
12
13
R6350
R6351
C6315
DP6301
1
35
D6324
R6353
P6301
19
IC6301
21
22
42
R6315
R6316
R6317
R6318
C6307
X6301
R6358
TP6301
C6306
C6308
INFRARED RECEIVER UNIT
U6301
C6305
J6310
R6346
R6359
EJECT
SW6312
REC /TIME
SW6311
D6307
D6308
D6305
D6306
OPERATION SECTION
P6310
8
STOP
SW6310
PLAY
SW6309
6402 D6401
INFRARED LED
VJBS8029

COMPARISON CHART
OF MODELS & MARKS

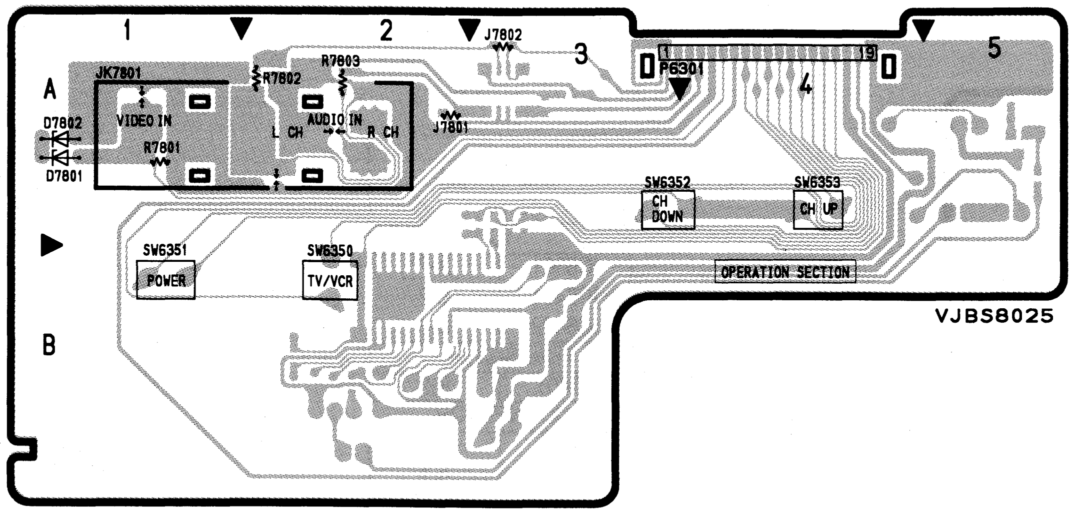
MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

OPERATION	
IC	
IC6301	A-7
IC6401	B-2
IC6402	B-3
TRANSISTOR	
Q6401	B-2
CONNECTOR	
P6301	A-10
P6302	A-4
P6310	B-13
TEST POINT	
TP6301	A-8

LEADLESS COMPONENT PARTS LOCATION GUIDE
OPERATION C.B.A.

R6310	A-3	R6406	A-3
R6315	A-7	R6407	A-3
R6316	A-7	R7801	A-1
R6317	A-7	R7802	A-1
R6318	A-7	R7803	A-2
R6358	A-8	C6307	A-7
R6401	B-3	C6308	A-9
R6402	A-2	C6401	B-3
R6404	B-2	C6403	B-3
R6405	B-2		

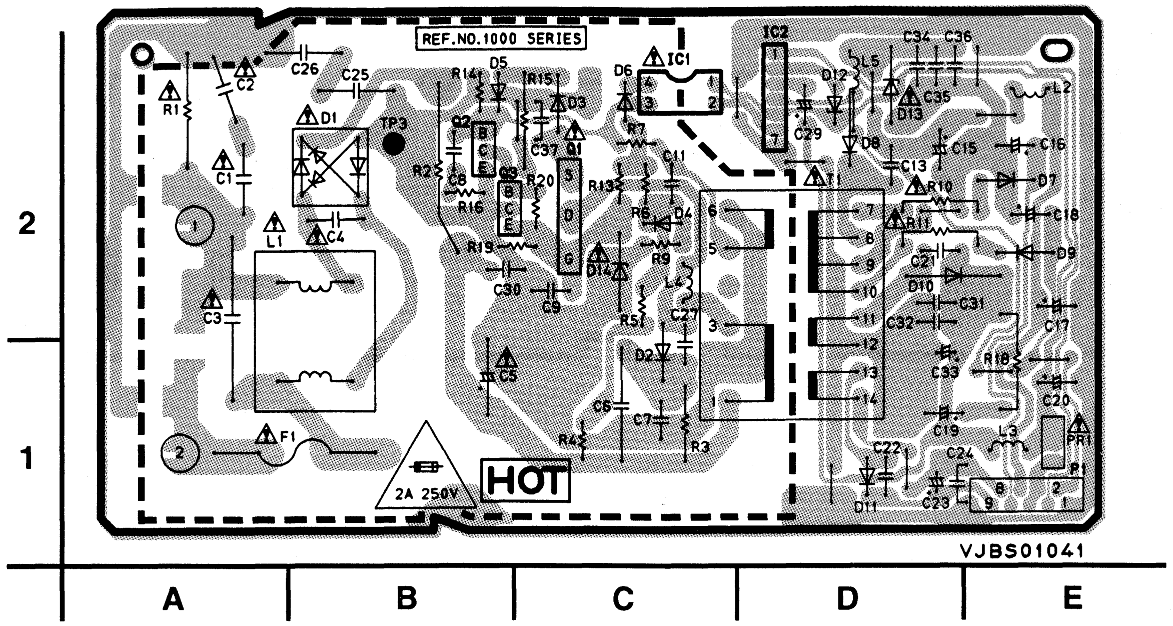
OPERATION C.B.A. VEPS8025A (E)


1
2
3
4
5
A
B
JK7801
VIDEO IN
AUDIO IN
L CH
R CH
D7802
D7801
R7801
R7802
R7803
J7801
J7802
P6301
SW6351
POWER
SW6350
TV/VCR
SW6352
CH DOWN
SW6353
CH UP
OPERATION SECTION
VJBS8025

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

POWER SUPPLY C.B.A. VEPS01041B1

HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

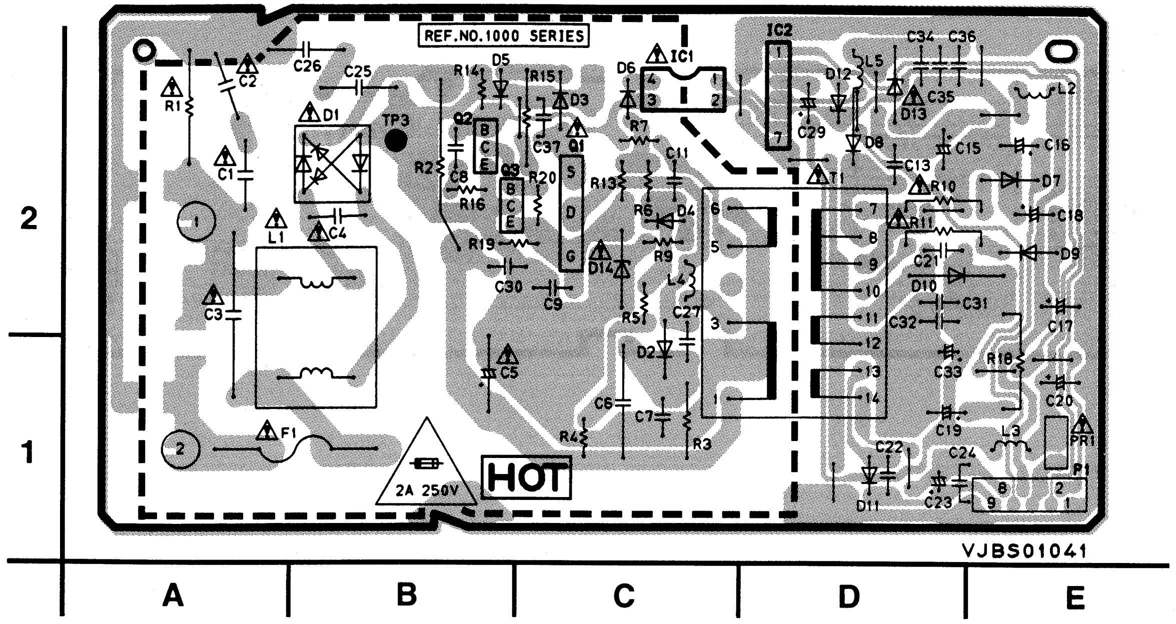

REF.NO.1000 SERIES
HOT
2A 250V
TP3
IC1
IC2
Q1
Q2
Q3
T1
L1
L2
L3
L4
L5
F1
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
C1
C2
C3
C4
C5
C6
C7
C8
C9
C11
C13
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C29
C30
C31
C32
C33
C34
C35
C36
C37
R1
R2
R3
R4
R5
R6
R7
R9
R10
R11
R13
R14
R15
R16
R18
R19
R20
PR1
P1
VJBS01041
2
1
A
B
C
D
E

POWER SUPPLY	
TRANSISTOR	
Q1001	C-2
Q1002	B-2
Q1003	B-2
IC	
IC1001	C-2
IC1002	D-2
CONNECTOR	
P1001	E-1
TEST POINT	
TP1003	B-2

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

POWER SUPPLY C.B.A. VEPS01041B1

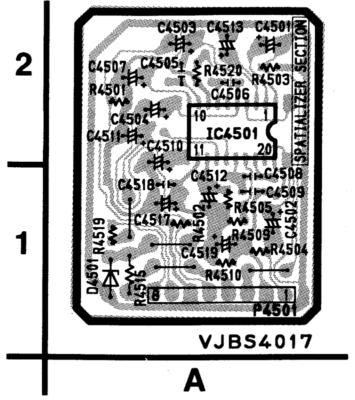
HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.


REF.NO.1000 SERIES
HOT
2A 250V
VJBS01041
IC1
IC2
D1
TP3
Q1
Q2
Q3
T1
F1
L1
P1
PR1
2
1
A
B
C
D
E

POWER SUPPLY	
TRANSISTOR	
Q1001	C-2
Q1002	B-2
Q1003	B-2
IC	
IC1001	C-2
IC1002	D-2
CONNECTOR	
P1001	E-1
TEST POINT	
TP1003	B-2

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

SPATIALIZER C.B.A.
VEPS4017A (E,F)


IC4501
P4501
SPATIALIZER SECTION
VJBS4017
2
1
A

COMPARISON CHART
OF MODELS & MARKS

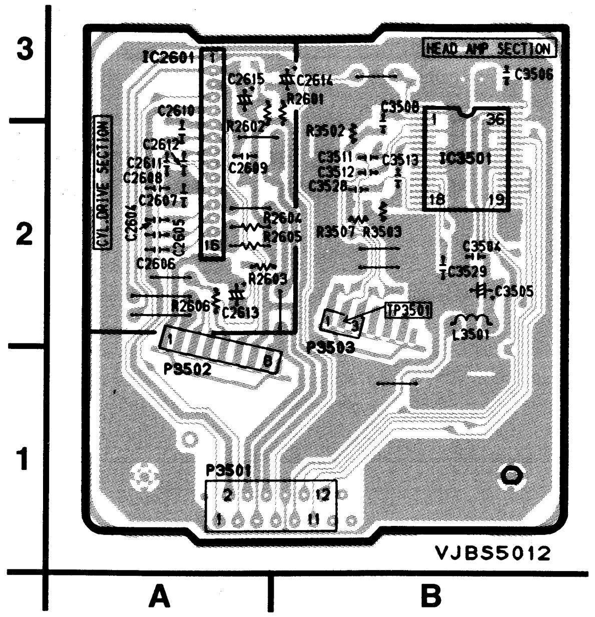
MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

SPATIALIZER	
IC	
IC4501	A-2
CONNECTOR	
P4501	A-1

LEADLESS COMPONENT PARTS LOCATION GUIDE
SPATIALIZER C.B.A.

R4501	A-2	R4509	A-1	C4506	A-2
R4502	A-1	R4510	A-1	C4508	A-1
R4503	A-2	R4519	A-1	C4509	A-1
R4504	A-1	R4520	A-2	C4518	A-1
R4505	A-1	C4505	A-2		

HEAD AMP C.B.A. VEPS5012A (A,B)


3
2
1
A
B
HEAD AMP SECTION
CYL DRIVE SECTION
IC2601
IC3501
P3501
P3502
P3503
TP3501
L3501
VJBS5012

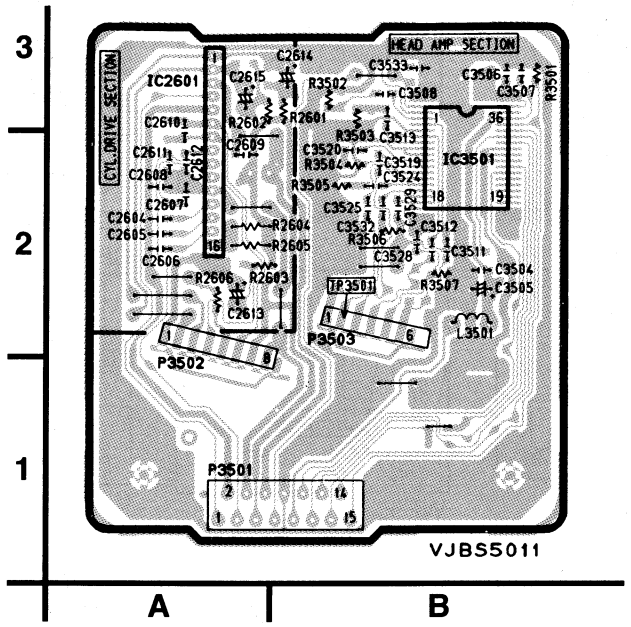
HEAD AMP	
IC	
IC2601	A-3
IC3501	B-2
CONNECTOR	
P3501	A-1
P3502	A-1
P3503	B-2
TEST POINT	
TP3501	B-2

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

LEADLESS COMPONENT PARTS LOCATION GUIDE
HEAD AMP C.B.A.

R2601	B-3	C2605	A-2	C3504	B-2
R2602	A-3	C2606	A-2	C3506	B-3
R2603	A-2	C2607	A-2	C3508	B-3
R2606	A-2	C2608	A-2	C3511	B-2
R3502	B-2	C2609	A-2	C3512	B-2
R3503	B-2	C2610	A-3	C3513	B-2
R3507	B-2	C2611	A-2	C3528	B-2
C2604	A-2	C2612	A-2	C3529	B-2

HEAD AMP C.B.A. VEPS5011A (C)


3
2
1
A
B
HEAD AMP SECTION
CYL DRIVE SECTION
IC2601
IC3501
P3501
P3502
P3503
TP3501
L3501
VJBS5011

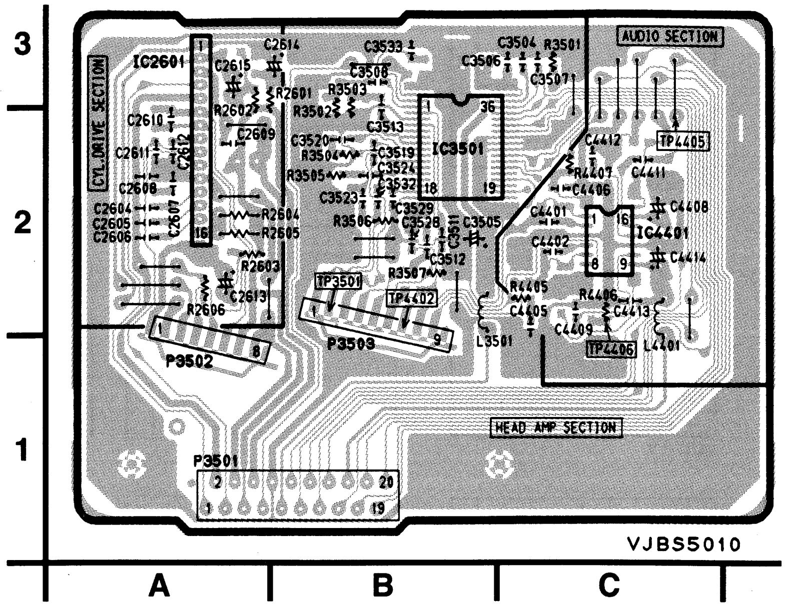
HEAD AMP	
IC	
IC2601	A-3
IC3501	B-2
CONNECTOR	
P3501	A-1
P3502	A-1
P3503	B-2
TEST POINT	
TP3501	B-2

LEADLESS COMPONENT PARTS LOCATION GUIDE
HEAD AMP C.B.A.

R2601	B-3	C2605	A-2	C3511	B-2
R2602	A-3	C2606	A-2	C3512	B-2
R2603	A-2	C2607	A-2	C3513	B-2
R2606	A-2	C2608	A-2	C3519	B-2
R3501	B-3	C2609	A-2	C3520	B-2
R3502	B-3	C2610	A-3	C3524	B-2
R3503	B-2	C2611	A-2	C3525	B-2
R3504	B-2	C2612	A-2	C3528	B-2
R3505	B-2	C3504	B-2	C3529	B-2
R3506	B-2	C3506	B-3	C3532	B-2
R3507	B-2	C3507	B-3	C3533	B-3
C2604	A-2	C3508	B-3		

(C)

Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.
VEPS5010A (D,E,F)



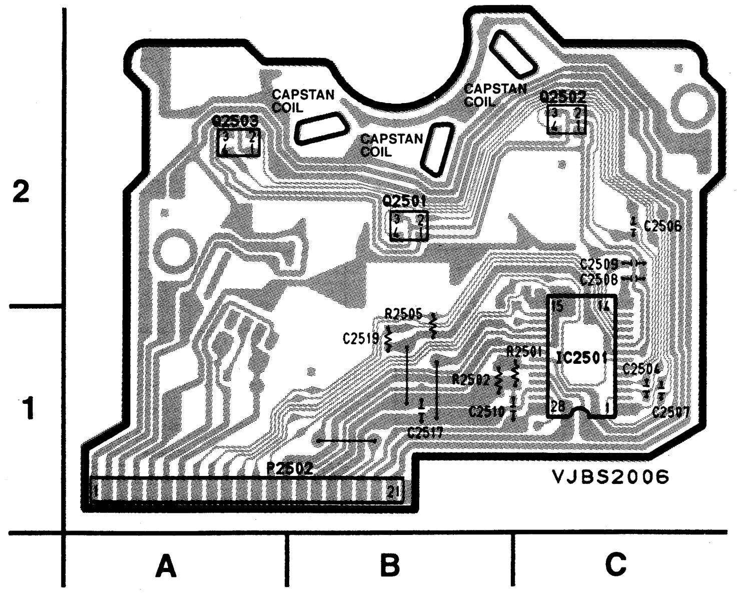
3
2
1
A
B
C
CYL DRIVE SECTION
AUDIO SECTION
HEAD AMP SECTION
IC2601
IC3501
IC4401
P3501
P3502
P3503
TP3501
TP4402
TP4405
TP4406
L3501
L4401
VJBS5010

Hi-Fi AUDIO/VIDEO HEAD AMP	
IC	
IC2601	A-3
IC3501	B-2
IC4401	C-2
CONNECTOR	
P3501	A-1
P3502	A-1
P3503	B-1
TEST POINT	
TP3501	B-2
TP4402	B-2
TP4405	C-2
TP4406	C-1

LEADLESS COMPONENT PARTS LOCATION GUIDE
Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.

R2601	B-3	C2606	A-2	C3523	B-2
R2602	A-2	C2607	A-2	C3524	B-2
R2603	A-2	C2608	A-2	C3528	B-2
R2606	A-2	C2609	A-2	C3529	B-2
R3501	C-3	C2610	A-2	C3532	B-2
R3502	B-2	C2611	A-2	C3533	B-3
R3503	B-3	C2612	A-2	C4401	C-2
R3504	B-2	C3504	C-3	C4402	C-2
R3505	B-2	C3506	B-3	C4405	C-2
R3506	B-2	C3507	C-3	C4406	C-2
R3507	B-2	C3508	B-3	C4409	C-2
R4405	C-2	C3511	B-2	C4411	C-2
R4406	C-2	C3512	B-2	C4412	C-2
R4407	C-2	C3513	B-2	C4413	C-2
C2604	A-2	C3519	B-2		
C2605	A-2	C3520	B-2		

CAPSTAN STATOR UNIT



2
1
A
B
C
CAPSTAN COIL
CAPSTAN COIL
CAPSTAN COIL
Q2501
Q2502
Q2503
IC2501
P2502
VJBS2006

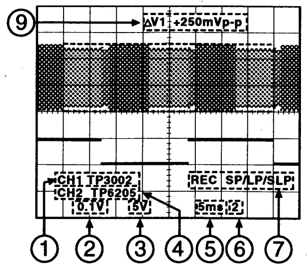
NOTE:
1. CAPSTAN STATOR UNIT IS SUPPLIED AS A CAPSTAN STATOR KIT ONLY. HOWEVER, IC2501(AN3845SC) IS AVAILABLE SEPARATELY AS A REPLACEMENT PART.
2. WHEN INSTALLING THE IC2501 OR CAPSTAN STATOR UNIT, BE SURE TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR UNIT" OF "DISASSEMBLY/ASSEMBLY PROCEDURES OF MECHANISM" SECTION.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

SIGNAL WAVEFORM

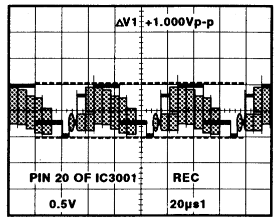
How to Read Waveforms



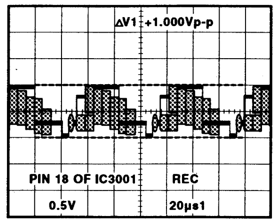
WF1 ⑧

① Connecting Point
② Volts/Div
③ Volts/Div
④ Connecting Point
⑤ Time/Div
⑥ Trigger Channel of the scope (1:CH1,2:CH2)
⑦ Operation Mode of VCR
⑧ Waveform Point on Schematic
⑨ ΔV1:Peak to Peak

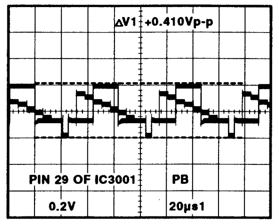
MAIN C.B.A.



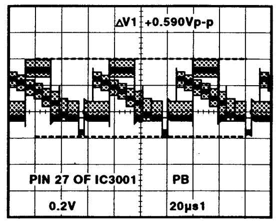
WF1



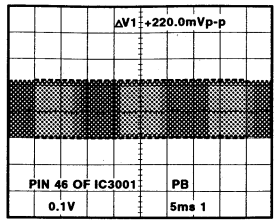
WF2



WF3



WF4



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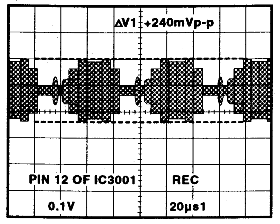

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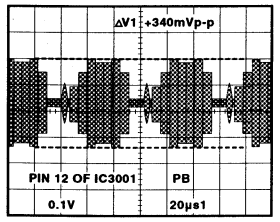
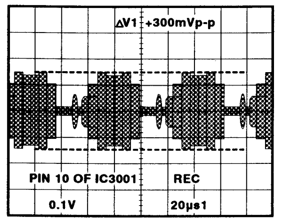
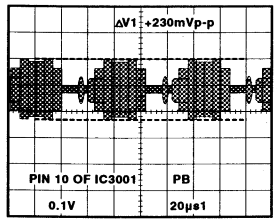


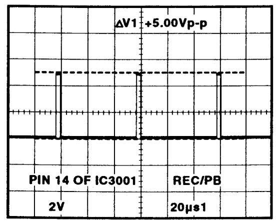
WF6



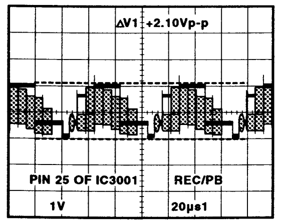
WF7



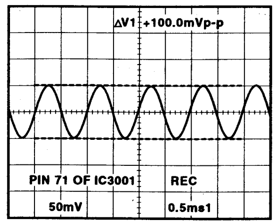
WF7



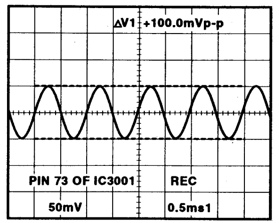
WF8



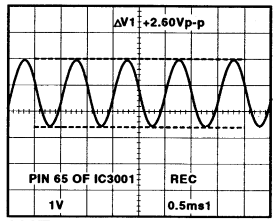
WF9



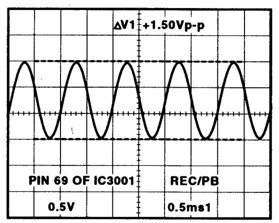
WF10



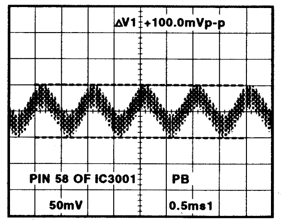
WF11



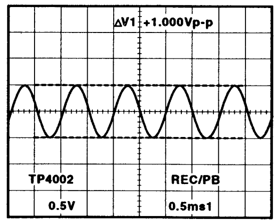
WF12



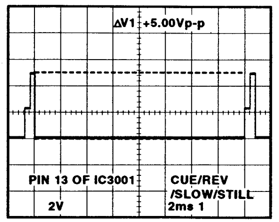
WF13



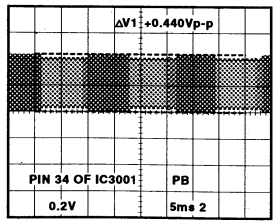
WF14



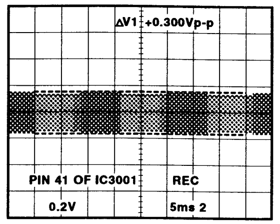
WF15



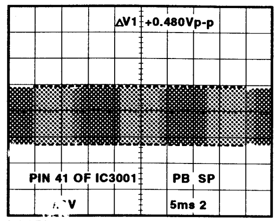
WF16



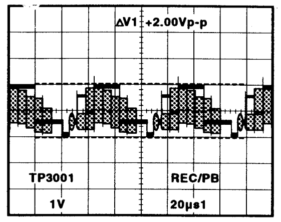
WF17



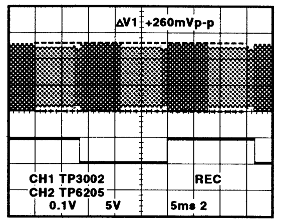
WF18



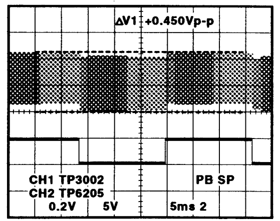
WF18



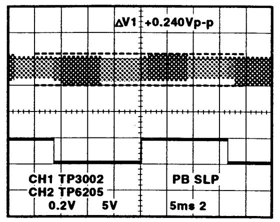
WF19



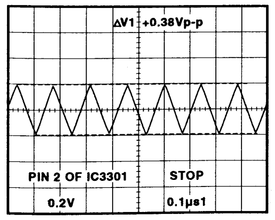
CH1 WF20
CH2 WF26



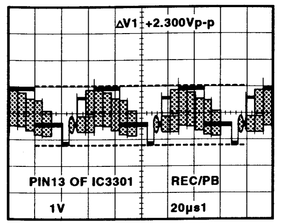
CH1 WF20
CH2 WF26



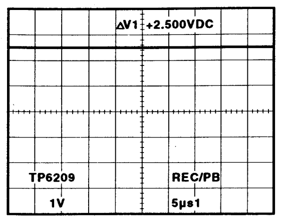
CH1 WF20
CH2 WF26



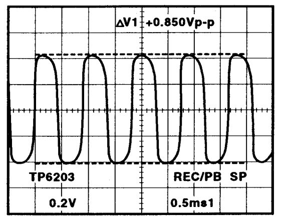
WF21



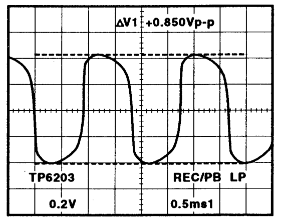
WF22



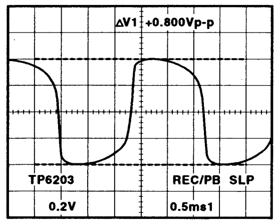
WF23



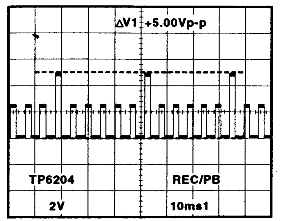
WF24



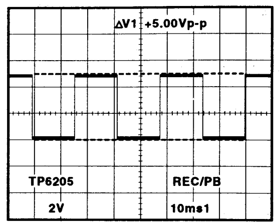
WF24



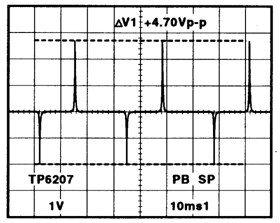
WF24



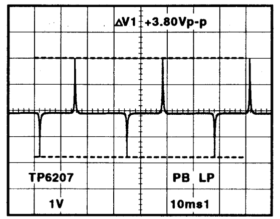
WF25



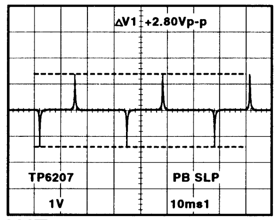
WF26



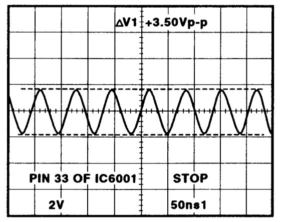
WF27



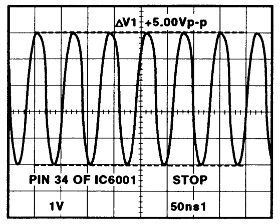
WF27



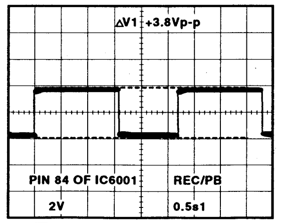
WF27



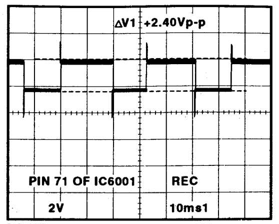
WF28



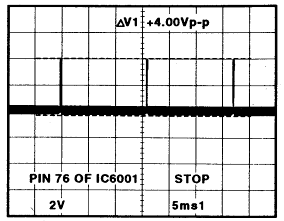
WF29



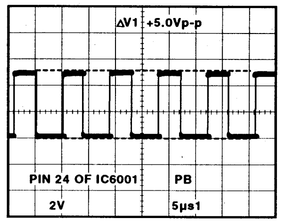
WF30



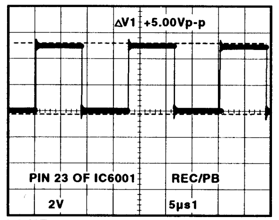
WF31



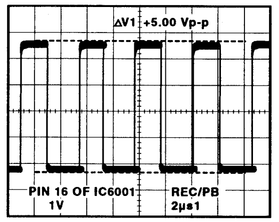
WF32



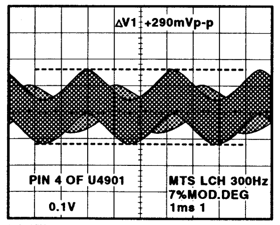
WF33



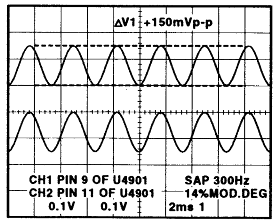
WF34



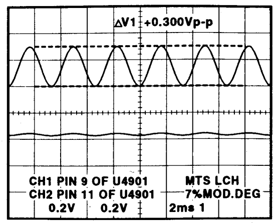
WF35



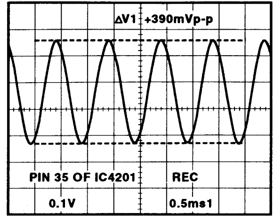
WF36 (D,E,F)



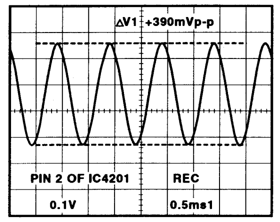
CH1 WF37 (D,E,F)
CH2 WF38 (D,E,F)



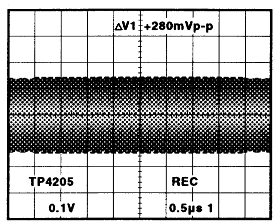
CH1 WF37(D,E,F)
CH2 WF38(D,E,F)



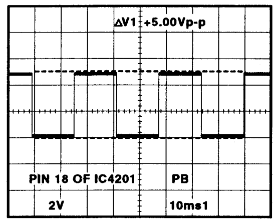
WF39 (D,E,F)



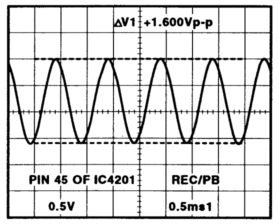
WF40 (D,E,F)



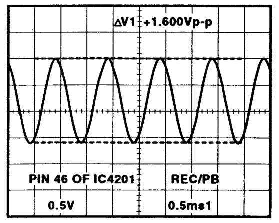
WF41 (D,E,F)



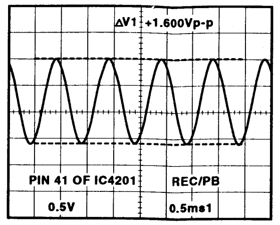
WF42 (D,E,F)



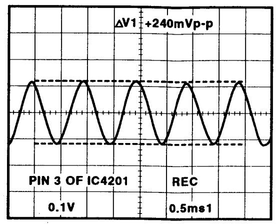
WF43 (D,E,F)



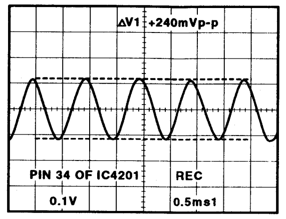
WF44 (D,E,F)



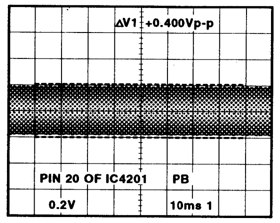
WF45(D,E,F)



WF46(D,E,F)

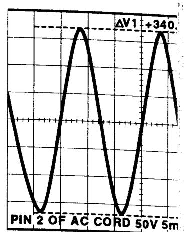


WF47 (D,E,F)

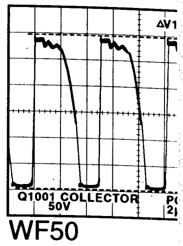


WF48 (D,E,F)

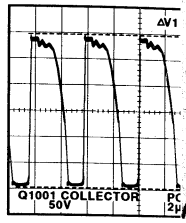
POWER SUPP



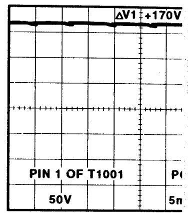
WF49



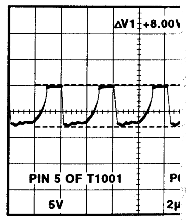
WF50



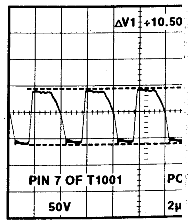
WF50



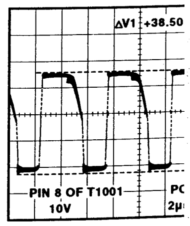
WF51



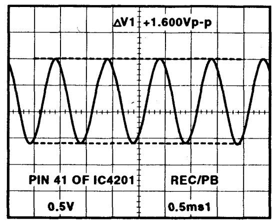
WF52



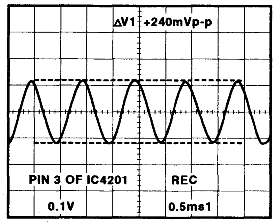
WF53



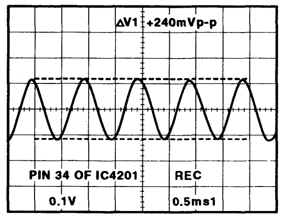
WF54



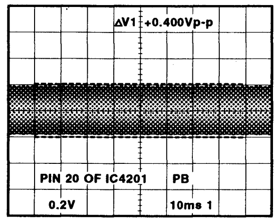
WF45(D,E,F)



WF46(D,E,F)

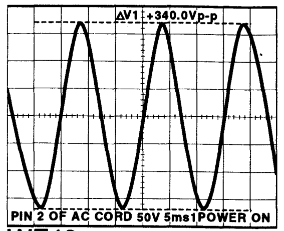


WF47 (D,E,F)

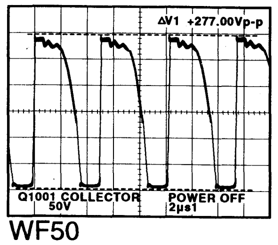


WF48 (D,E,F)

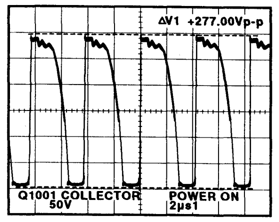
POWER SUPPLY C.B.A



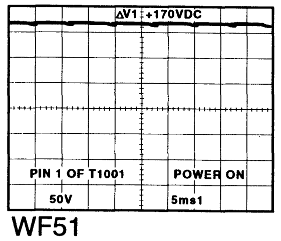
WF49



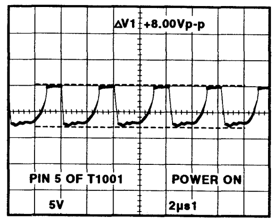
WF50



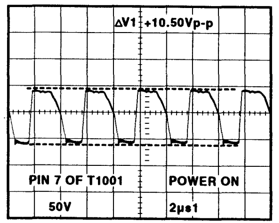
WF50



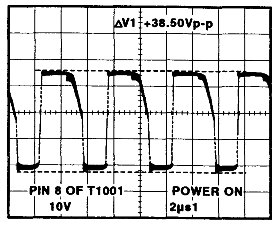
WF51



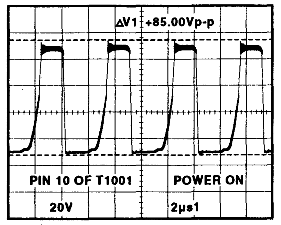
WF52



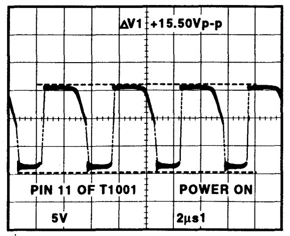
WF53



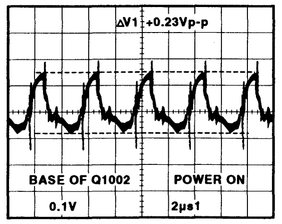
WF54



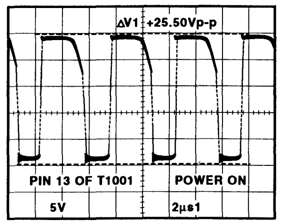
WF55



WF56

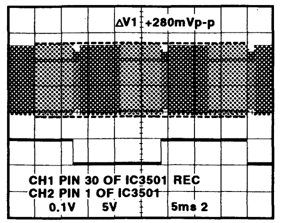


WF57

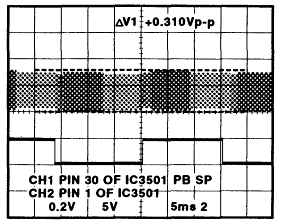


WF58

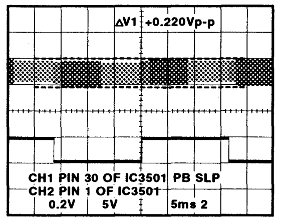
HEAD AMP C.B.A. (A,B)



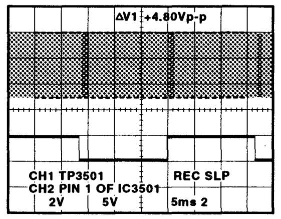
CH1 WF59
CH2 WF60



CH1 WF59
CH2 WF60

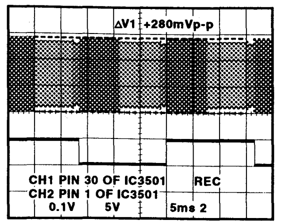


CH1 WF59
CH2 WF60

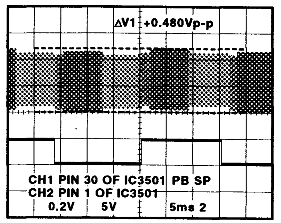


CH1 WF61
CH2 WF60

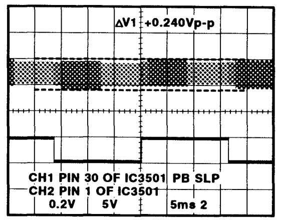
HEAD AMP C.B.A. (C)



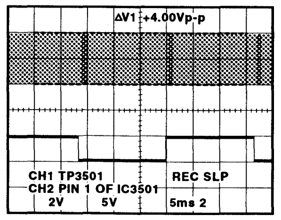
CH1 WF62
CH2 WF63



CH1 WF62
CH2 WF63

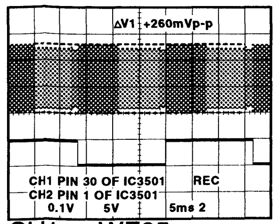


CH1 WF62
CH2 WF63

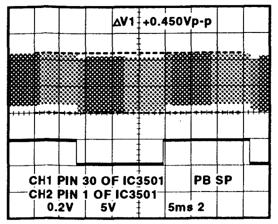


CH1 WF64
CH2 WF63

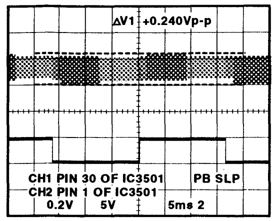
Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. (D,E,F)



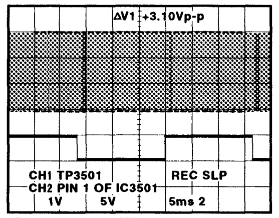
CH1 WF65
CH2 WF66



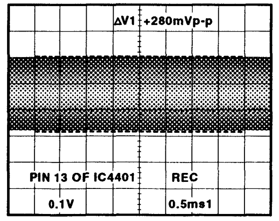
CH1 WF65
CH2 WF66



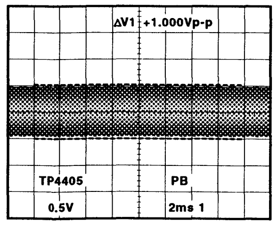
CH1 WF65
CH2 WF66



CH1 WF67
CH2 WF66



WF68



WF69

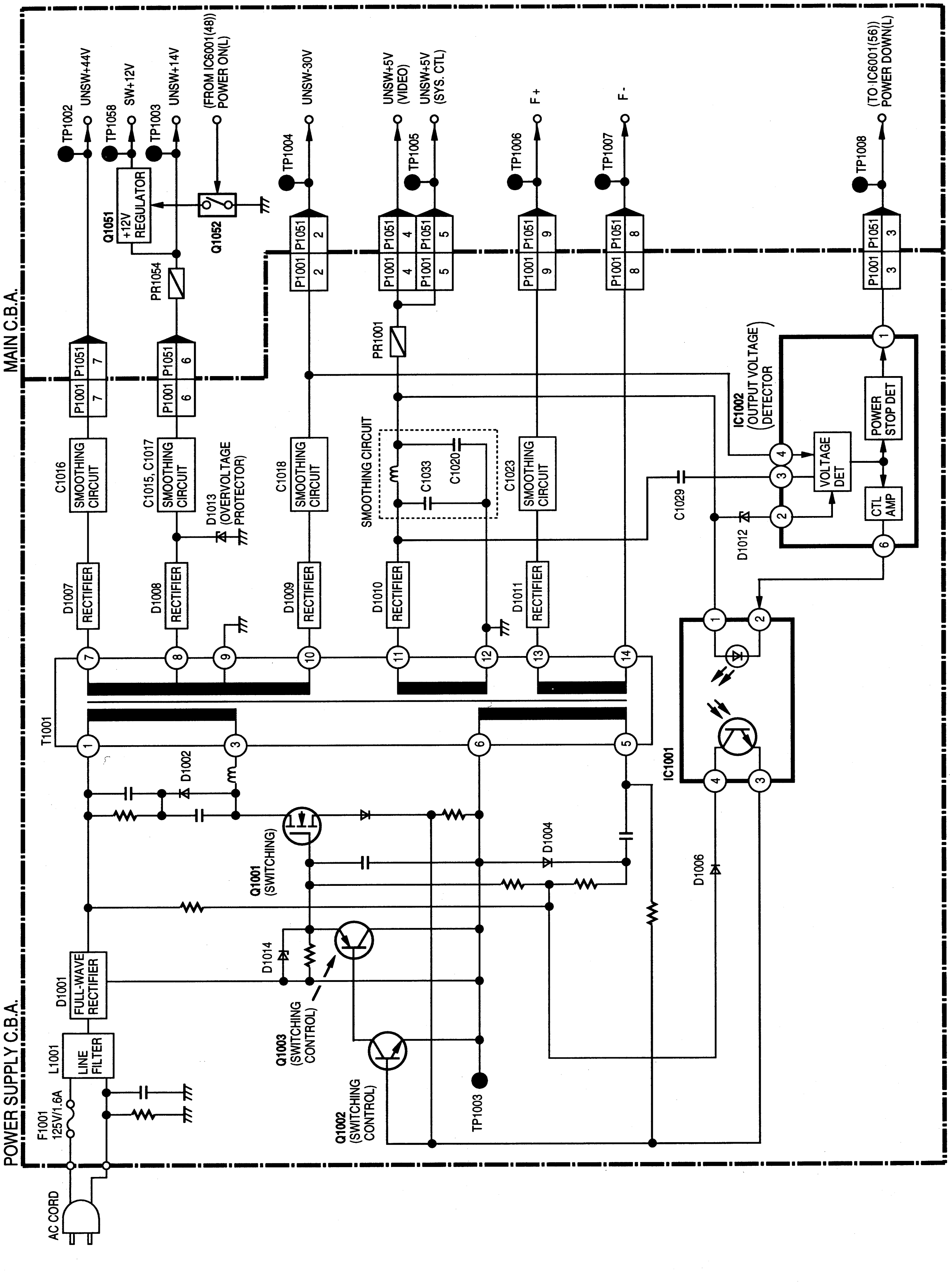
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

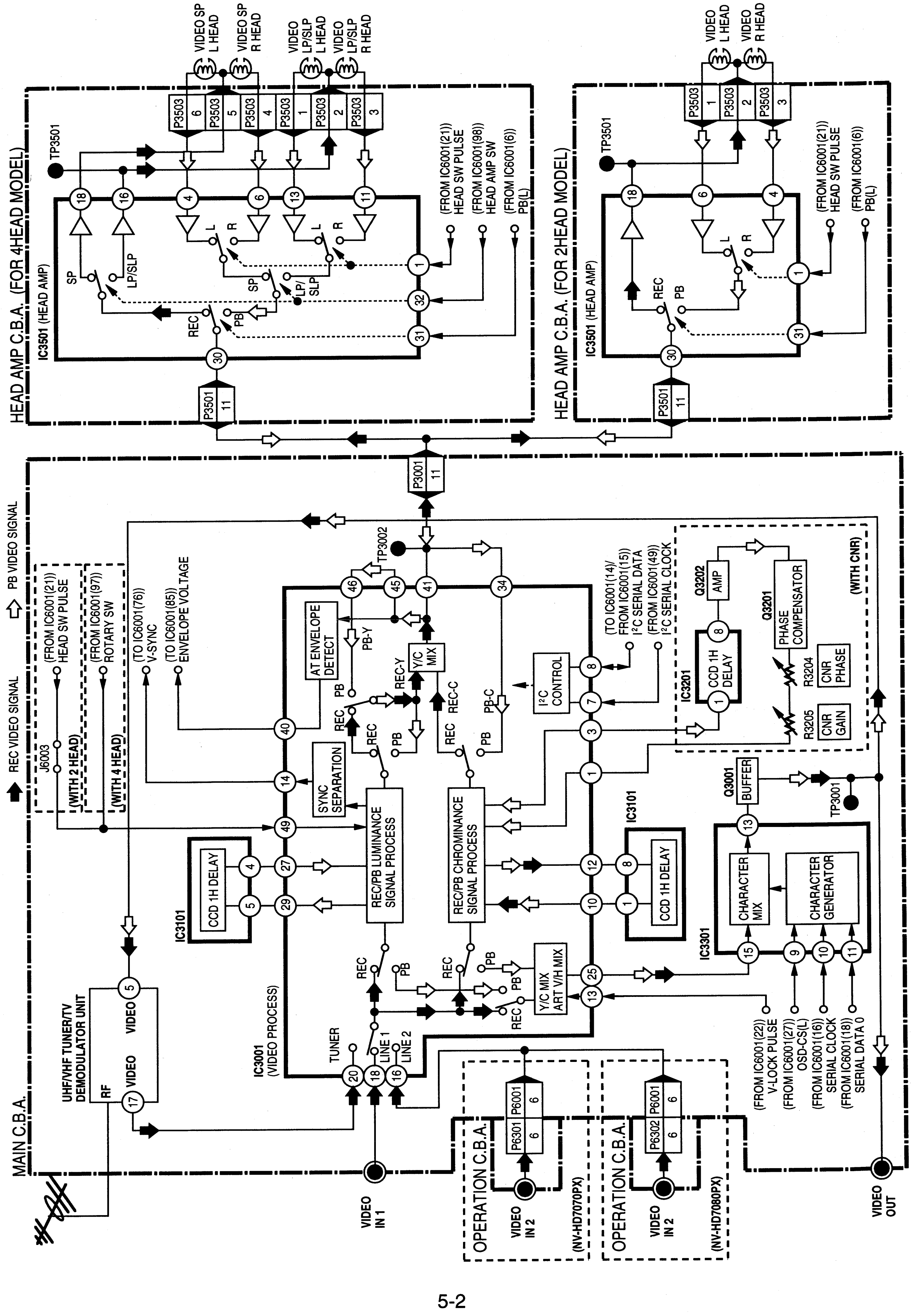
MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

BLOCK DIAGRAMS

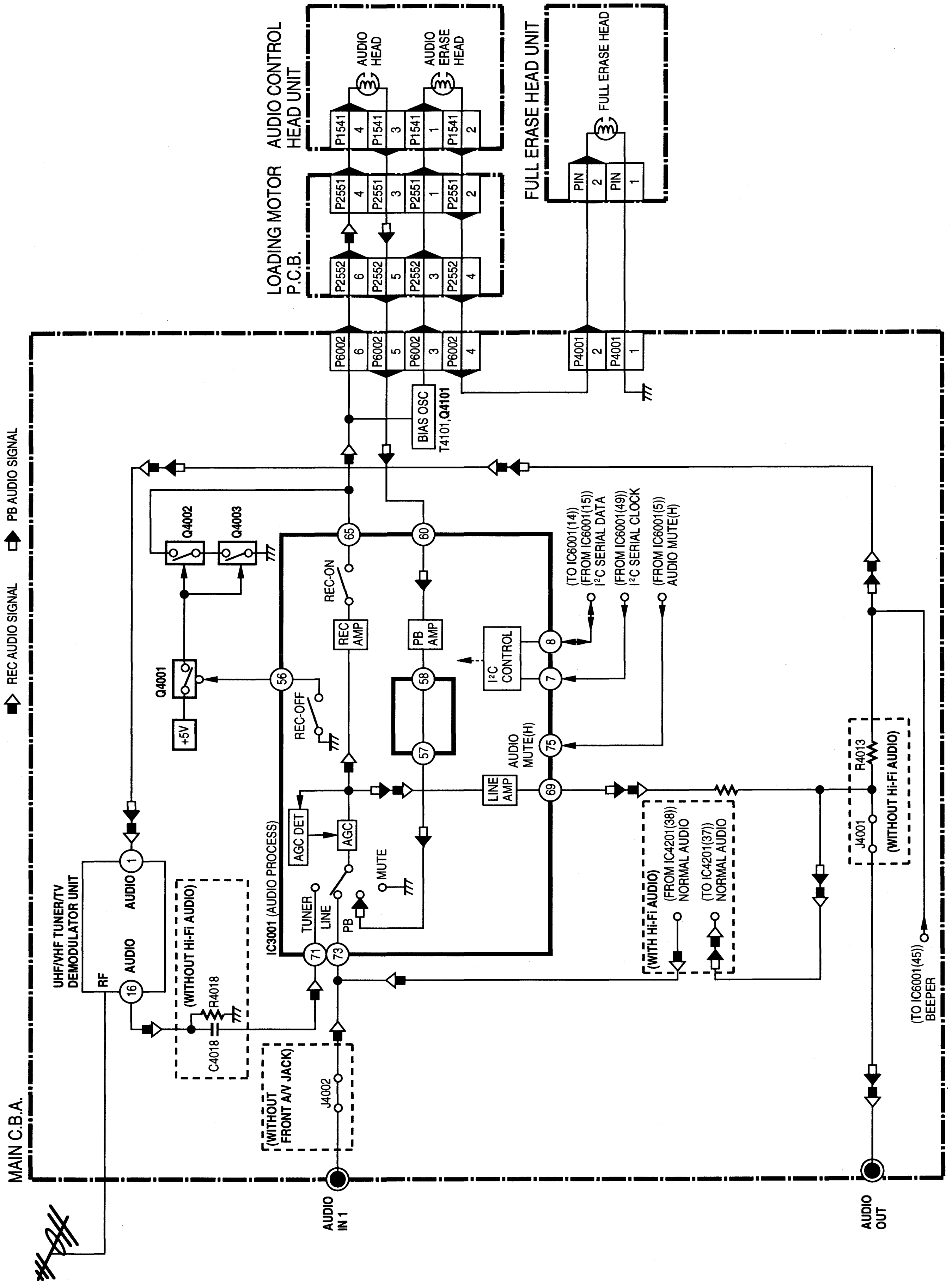
POWER SUPPLY BLOCK DIAGRAM


MAIN C.B.A.
POWER SUPPLY C.B.A.
TP1002
UNSW+44V
TP1058
SW+12V
TP1003
UNSW+14V
(FROM IC6001(48))
POWER ON(L)
Q1051
+12V
REGULATOR
Q1052
PR1054
TP1004
UNSW-30V
UNSW+5V
(VIDEO)
TP1005
UNSW+5V
(SYS. CTL)
TP1006
F+
TP1007
F-
TP1008
(TO IC6001(56))
POWER DOWN(L)
P1001
P1051
PR1001
IC1002
(OUTPUT VOLTAGE
DETECTOR)
VOLTAGE
DET
POWER
STOP DET
CTL
AMP
C1029
D1012
C1016
SMOOTHING
CIRCUIT
C1015, C1017
SMOOTHING
CIRCUIT
D1013
(OVERVOLTAGE
PROTECTOR)
C1018
SMOOTHING
CIRCUIT
SMOOTHING CIRCUIT
C1033
C1020
C1023
SMOOTHING
CIRCUIT
D1007
RECTIFIER
D1008
RECTIFIER
D1009
RECTIFIER
D1010
RECTIFIER
D1011
RECTIFIER
T1001
IC1001
D1002
Q1001
(SWITCHING)
D1004
D1006
D1014
Q1003
(SWITCHING
CONTROL)
Q1002
(SWITCHING
CONTROL)
TP1003
D1001
FULL-WAVE
RECTIFIER
L1001
LINE
FILTER
F1001
125V/1.6A
AC CORD

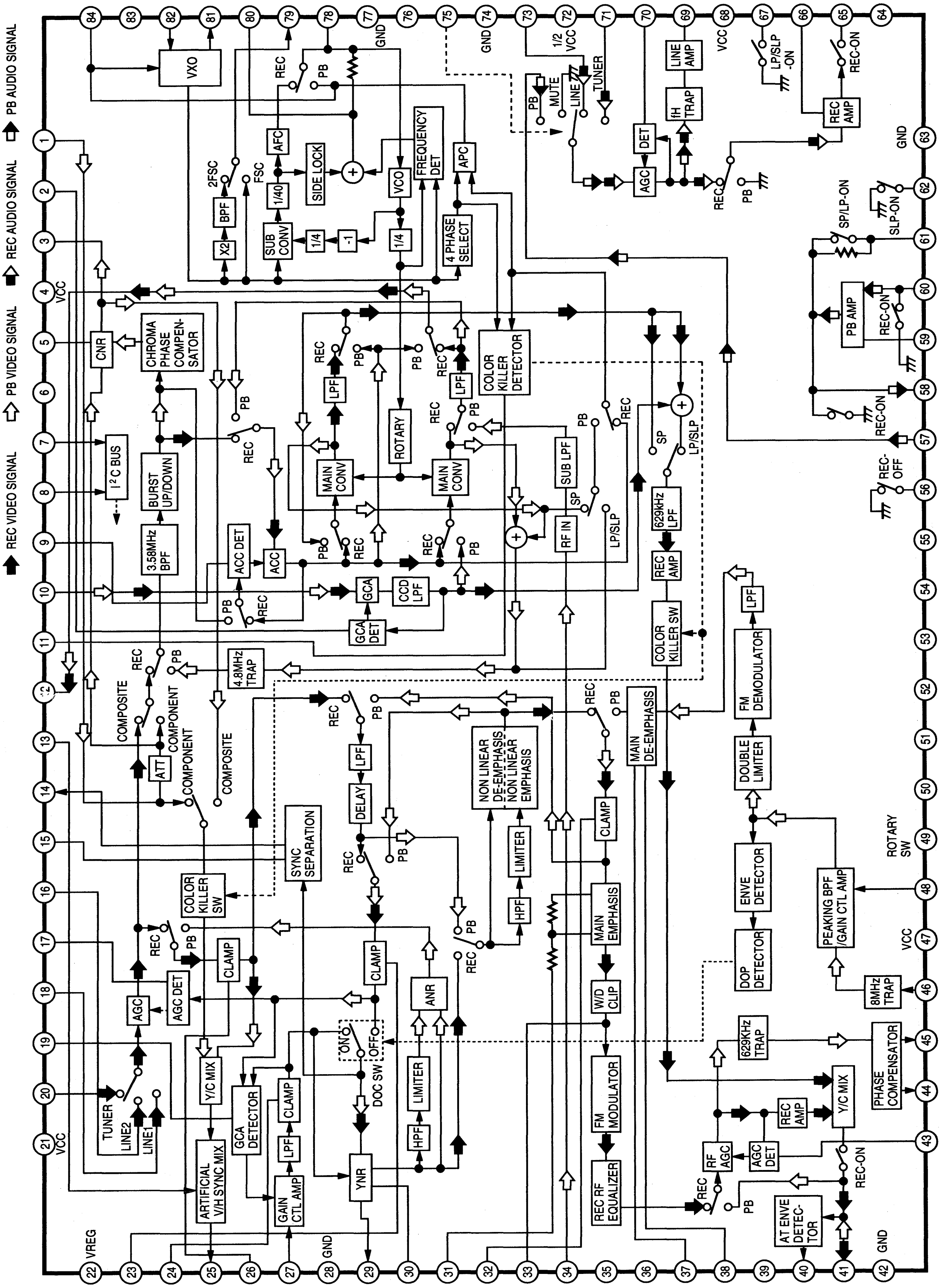
VIDEO SIGNAL PATH BLOCK DIAGRAM


HEAD AMP C.B.A. (FOR 4HEAD MODEL)
HEAD AMP C.B.A. (FOR 2HEAD MODEL)
IC3501 (HEAD AMP)
VIDEO SP L HEAD
VIDEO SP R HEAD
VIDEO LP/SLP L HEAD
VIDEO LP/SLP R HEAD
VIDEO L HEAD
VIDEO R HEAD
P3503
P3501
TP3501
SP
LP/SLP
LP/ SLP
REC
PB
L
R
(FROM IC6001(21)) HEAD SW PULSE
(FROM IC6001(98)) HEAD AMP SW
(FROM IC6001(6)) PB(L)
MAIN C.B.A.
REC VIDEO SIGNAL
PB VIDEO SIGNAL
J6003
(FROM IC6001(21)) HEAD SW PULSE
(FROM IC6001(97)) ROTARY SW
(WITH 2 HEAD)
(WITH 4 HEAD)
(TO IC6001(76)) V-SYNC
(TO IC6001(85)) ENVELOPE VOLTAGE
P3001
TP3002
AT ENVELOPE DETECT
PB-Y
Y/C MIX
REC-Y
REC-C
PB-C
I²C CONTROL
(TO IC6001(14)/ FROM IC6001(15)) I²C SERIAL DATA
(FROM IC6001(49)) I²C SERIAL CLOCK
SYNC SEPARATION
REC/PB LUMINANCE SIGNAL PROCESS
REC/PB CHROMINANCE SIGNAL PROCESS
CCD 1H DELAY
IC3101
IC3201
Q3202
AMP
Q3201
PHASE COMPENSATOR
R3204
CNR PHASE
R3205
CNR GAIN
(WITH CNR)
Q3001
BUFFER
TP3001
Y/C MIX ART V/H MIX
IC3301
CHARACTER MIX
CHARACTER GENERATOR
IC3001 (VIDEO PROCESS)
TUNER
LINE 1
LINE 2
UHF/VHF TUNER/TV DEMODULATOR UNIT
RF
VIDEO
(FROM IC6001(22)) V-LOCK PULSE
(FROM IC6001(27)) OSD-CS(L)
(FROM IC6001(16)) SERIAL CLOCK
(FROM IC6001(18)) SERIAL DATA 0
P6301
P6302
P6001
OPERATION C.B.A.
VIDEO IN 2
(NV-HD707OPX)
(NV-HD708OPX)
VIDEO IN 1
VIDEO OUT

AUDIO SIGNAL PATH BLOCK DIAGRAM


REC AUDIO SIGNAL
PB AUDIO SIGNAL
MAIN C.B.A.
LOADING MOTOR P.C.B.
AUDIO CONTROL HEAD UNIT
FULL ERASE HEAD UNIT
AUDIO HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
P1541
P2551
P2552
P6002
P4001
PIN
BIAS OSC
T4101,Q4101
Q4001
Q4002
Q4003
+5V
REC-ON
REC-OFF
REC AMP
PB AMP
I²C CONTROL
AGC DET
AGC
MUTE
LINE AMP
AUDIO MUTE(H)
TUNER
LINE
PB
IC3001 (AUDIO PROCESS)
(TO IC6001(14))
(FROM IC6001(15))
I²C SERIAL DATA
(FROM IC6001(49))
I²C SERIAL CLOCK
(FROM IC6001(5))
AUDIO MUTE(H)
UHF/VHF TUNER/TV DEMODULATOR UNIT
RF
AUDIO
(WITHOUT Hi-Fi AUDIO)
R4018
C4018
(WITHOUT FRONT A/V JACK)
J4002
(WITH Hi-Fi AUDIO)
(FROM IC4201(38)) NORMAL AUDIO
(TO IC4201(37)) NORMAL AUDIO
R4013
J4001
(TO IC6001(45)) BEEPER
AUDIO IN 1
AUDIO OUT

IC3001 VIDEO/AUDIO PROCESS IC-BLOCK DIAGRAM, AN3475FBP


REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL
VXO
REC
PB
AFC
1/40
SIDE LOCK
VCO
FREQUENCY DET
APC
2FSC
FSC
BPF
X2
SUB CONV
1/4
-1
4 PHASE SELECT
GND
1/2 VCC
TUNER
MUTE
LINE
LINE AMP
fH TRAP
DET
AGC
VCC
LP/SLP -ON
REC-ON
REC AMP
SP/LP-ON
SLP-ON
PB AMP
REC-OFF
CNR
CHROMA PHASE COMPEN-SATOR
I²C BUS
BURST UP/DOWN
3.58MHz BPF
ACC DET
ACC
LPF
MAIN CONV
ROTARY
COLOR KILLER DETECTOR
SUB LPF
RF IN
SP
LP/SLP
629kHz LPF
GCA
CCD LPF
GCA DET
COLOR KILLER SW
4.8MHz TRAP
COMPOSITE
COMPONENT
ATT
DELAY
SYNC SEPARATION
NON LINEAR DE-EMPHASIS NON LINEAR EMPHASIS
LIMITER
HPF
CLAMP
MAIN DE-EMPHASIS
MAIN EMPHASIS
W/D CLIP
FM MODULATOR
REC RF EQUALIZER
FM DEMODULATOR
DOUBLE LIMITER
ENVE DETECTOR
DOP DETECTOR
PEAKING BPF /GAIN CTL AMP
ROTARY SW
8MHz TRAP
629KHz TRAP
PHASE COMPENSATOR
Y/C MIX
RF AGC
AGC DET
AT ENVE DETEC-TOR
AGC DET
ANR
ON
OFF
DOC SW
YNR
GCA DETECTOR
GAIN CTL AMP
ARTIFICIAL V/H SYNC MIX
TUNER
LINE2
LINE1
VREG
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
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57
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60
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62
63
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66
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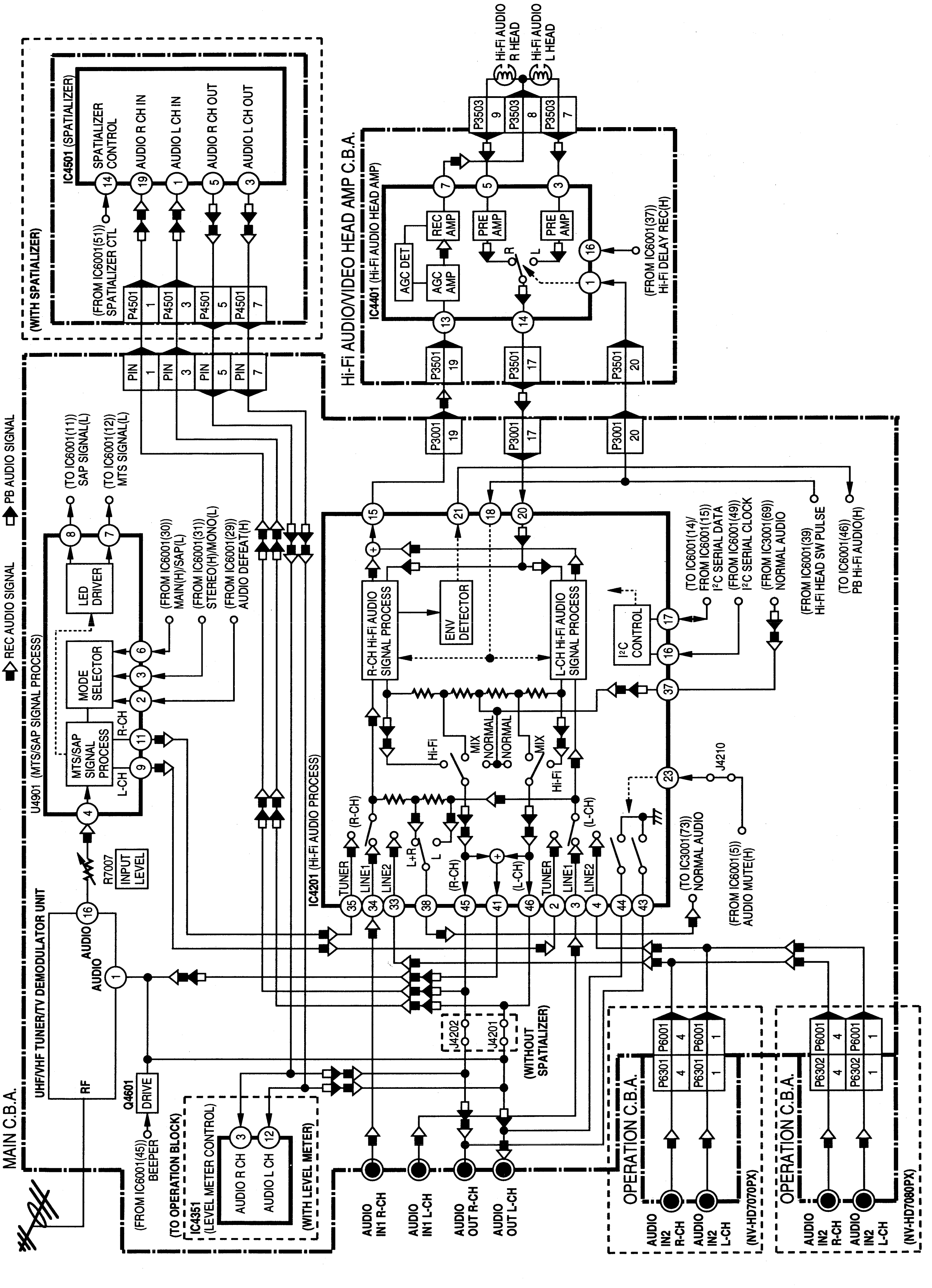
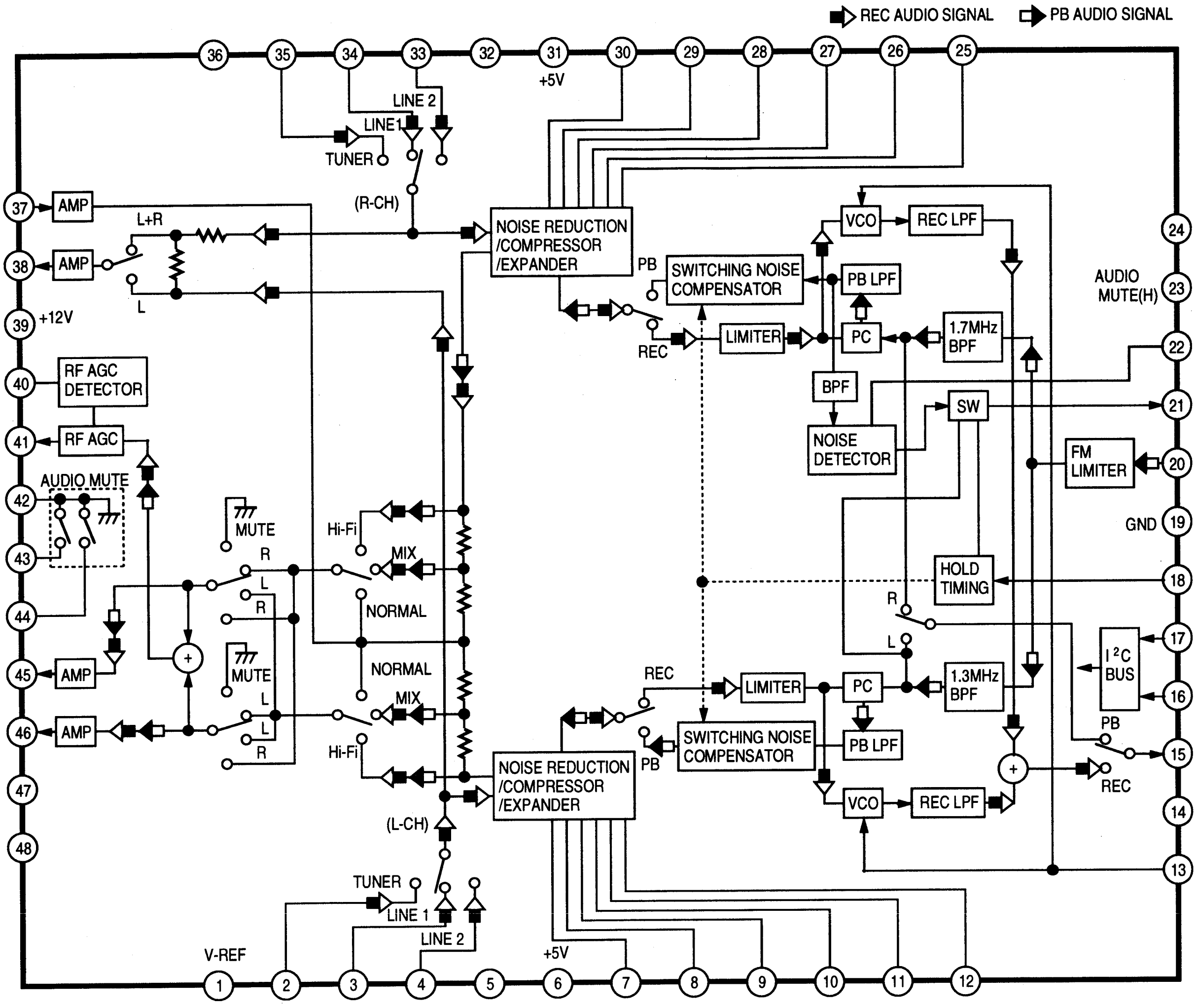
84

Hi-Fi AUDIO SIGNAL PATH BLOCK DIAGRAM



REC AUDIO SIGNAL
PB AUDIO SIGNAL
MAIN C.B.A.
(WITH SPATIALIZER)
IC4501 (SPATIALIZER)
SPATIALIZER CONTROL
AUDIO R CH IN
AUDIO L CH IN
AUDIO R CH OUT
AUDIO L CH OUT
(FROM IC6001(51)) SPATIALIZER CTL
P4501
PIN
Hi-Fi AUDIO R HEAD
Hi-Fi AUDIO L HEAD
P3503
Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.
IC4401 (Hi-Fi AUDIO HEAD AMP)
AGC DET
AGC AMP
REC AMP
PRE AMP
(FROM IC6001(37)) Hi-Fi DELAY REC(H)
P3501
P3001
U4901 (MTS/SAP SIGNAL PROCESS)
LED DRIVER
MODE SELECTOR
MTS/SAP SIGNAL PROCESS
R-CH
L-CH
(TO IC6001(11)) SAP SIGNAL(L)
(TO IC6001(12)) MTS SIGNAL(L)
(FROM IC6001(30)) MAIN(H)/SAP(L)
(FROM IC6001(31)) STEREO(H)/MONO(L)
(FROM IC6001(29)) AUDIO DEFEAT(H)
R7007 INPUT LEVEL
UHF/VHF TUNER/TV DEMODULATOR UNIT
AUDIO
RF
IC4201 (Hi-Fi AUDIO PROCESS)
R-CH Hi-Fi AUDIO SIGNAL PROCESS
L-CH Hi-Fi AUDIO SIGNAL PROCESS
ENV DETECTOR
I²C CONTROL
(TO IC6001(14)/ FROM IC6001(15)) I²C SERIAL DATA
(FROM IC6001(49)) I²C SERIAL CLOCK
(FROM IC3001(69)) NORMAL AUDIO
(FROM IC6001(39)) Hi-Fi HEAD SW PULSE
(TO IC6001(46)) PB Hi-Fi AUDIO(H)
Hi-Fi
MIX
NORMAL
NORMAL
MIX
Hi-Fi
TUNER
LINE1
LINE2
L+R
L
(R-CH)
(L-CH)
J4210
(TO IC3001(73)) NORMAL AUDIO
(FROM IC6001(5)) AUDIO MUTE(H)
J4202
J4201
(WITHOUT SPATIALIZER)
Q4601 DRIVE
(FROM IC6001(45)) BEEPER
(TO OPERATION BLOCK)
IC4351 (LEVEL METER CONTROL)
AUDIO R CH
AUDIO L CH
(WITH LEVEL METER)
AUDIO IN1 R-CH
AUDIO IN1 L-CH
AUDIO OUT R-CH
AUDIO OUT L-CH
OPERATION C.B.A.
P6301
P6001
AUDIO IN2 R-CH
AUDIO IN2 L-CH
(NV-HD7070PX)
OPERATION C.B.A.
P6302
P6001
AUDIO IN2 R-CH
AUDIO IN2 L-CH
(NV-HD7060PX)

IC4201 Hi-Fi AUDIO PROCESS IC-BLOCK DIAGRAM, AN3962FB-V


REC AUDIO SIGNAL
PB AUDIO SIGNAL
+5V
LINE 2
LINE1
TUNER
(R-CH)
AMP
L+R
L
+12V
RF AGC DETECTOR
RF AGC
AUDIO MUTE
MUTE
R
Hi-Fi
MIX
NORMAL
+
NOISE REDUCTION /COMPRESSOR /EXPANDER
PB
REC
SWITCHING NOISE COMPENSATOR
LIMITER
VCO
REC LPF
PB LPF
PC
1.7MHz BPF
BPF
SW
NOISE DETECTOR
FM LIMITER
AUDIO MUTE(H)
GND
HOLD TIMING
I²C BUS
1.3MHz BPF
(L-CH)
LINE 1
V-REF
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
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27
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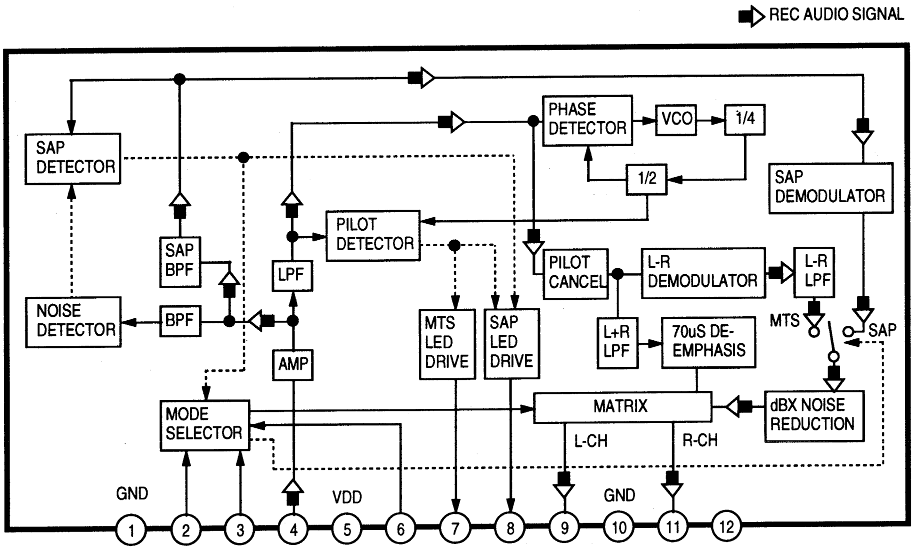
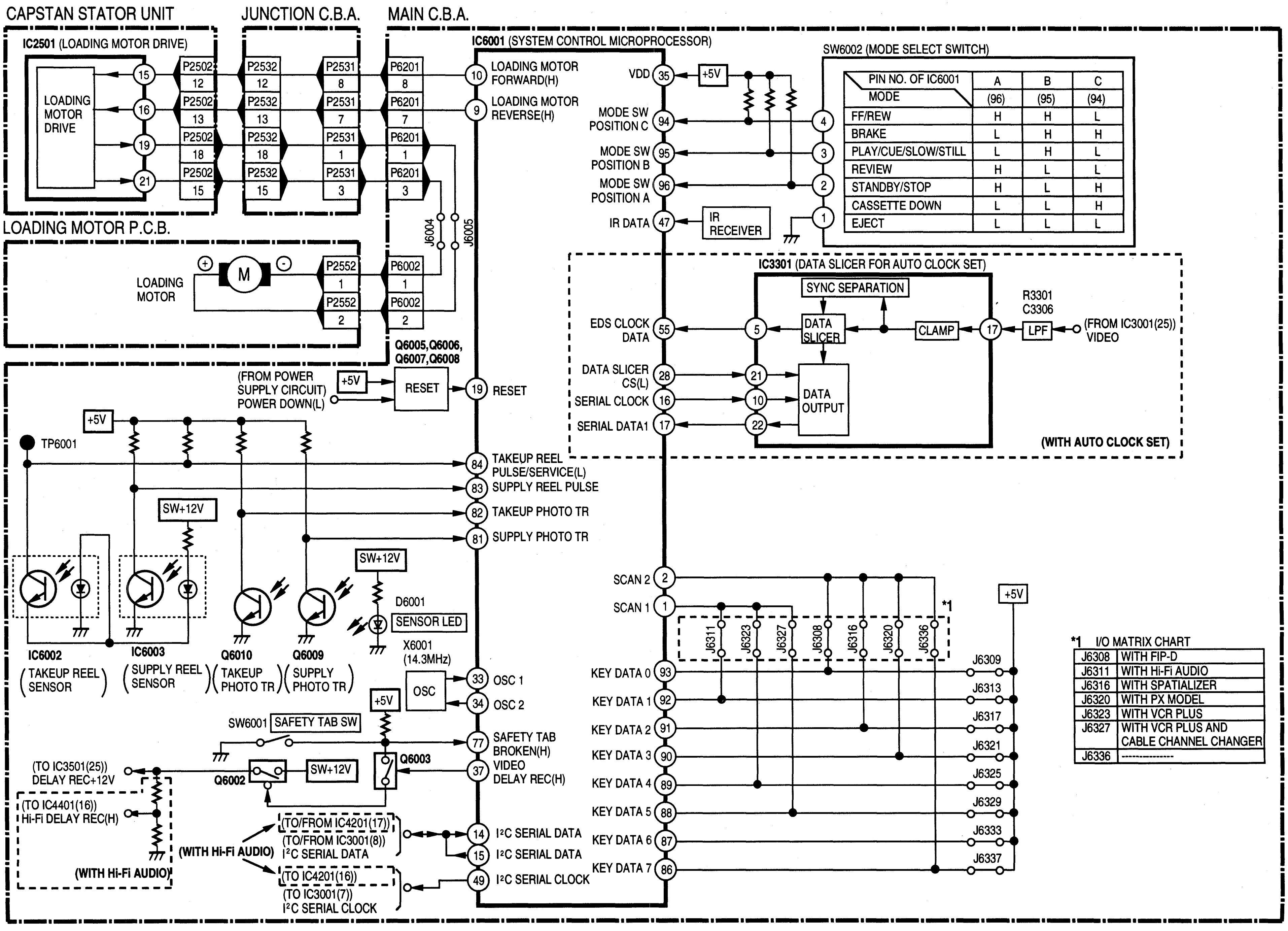
45
46
47
48

U4901 MTS/SAP AUDIO PROCESS IC-BLOCK DIAGRAM, VCRS0213


REC AUDIO SIGNAL
SAP DETECTOR
PHASE DETECTOR
VCO
1/4
1/2
SAP DEMODULATOR
SAP BPF
LPF
PILOT DETECTOR
PILOT CANCEL
L-R DEMODULATOR
L-R LPF
NOISE DETECTOR
BPF
AMP
MTS LED DRIVE
SAP LED DRIVE
L+R LPF
70uS DE-EMPHASIS
MTS
SAP
MODE SELECTOR
MATRIX
dBX NOISE REDUCTION
L-CH
R-CH
GND
VDD
1
2
3
4
5
6
7
8
9
10
11
12

SYSTEM CONTROL BLOCK DIAGRAM



CAPSTAN STATOR UNIT
JUNCTION C.B.A.
MAIN C.B.A.
IC2501 (LOADING MOTOR DRIVE)
LOADING MOTOR DRIVE
15
16
19
21
P2502 12
P2502 13
P2502 18
P2502 15
P2532 12
P2532 13
P2532 18
P2532 15
P2531 8
P2531 7
P2531 1
P2531 3
P6201 8
P6201 7
P6201 1
P6201 3
J6004
J6005
LOADING MOTOR P.C.B.
LOADING MOTOR
M
+
-
P2552 1
P2552 2
P6002 1
P6002 2
IC6001 (SYSTEM CONTROL MICROPROCESSOR)
10 LOADING MOTOR FORWARD(H)
9 LOADING MOTOR REVERSE(H)
VDD 35
+5V
MODE SW POSITION C 94
MODE SW POSITION B 95
MODE SW POSITION A 96
IR DATA 47
IR RECEIVER
SW6002 (MODE SELECT SWITCH)
4
3
2
1
Q6005,Q6006, Q6007,Q6008
(FROM POWER SUPPLY CIRCUIT) POWER DOWN(L)
+5V
RESET
19 RESET
IC3301 (DATA SLICER FOR AUTO CLOCK SET)
SYNC SEPARATION
DATA SLICER
CLAMP
DATA OUTPUT
R3301
C3306
LPF
(FROM IC3001(25)) VIDEO
EDS CLOCK DATA 55
DATA SLICER CS(L) 28
SERIAL CLOCK 16
SERIAL DATA1 17
5
21
10
22
17
(WITH AUTO CLOCK SET)
+5V
TP6001
84 TAKEUP REEL PULSE/SERVICE(L)
83 SUPPLY REEL PULSE
82 TAKEUP PHOTO TR
81 SUPPLY PHOTO TR
SW+12V
SW+12V
D6001
SENSOR LED
IC6002 (TAKEUP REEL SENSOR)
IC6003 (SUPPLY REEL SENSOR)
Q6010 (TAKEUP PHOTO TR)
Q6009 (SUPPLY PHOTO TR)
X6001 (14.3MHz)
OSC
33 OSC 1
34 OSC 2
+5V
SW6001
SAFETY TAB SW
77 SAFETY TAB BROKEN(H)
37 VIDEO DELAY REC(H)
Q6003
Q6002
SW+12V
(TO IC3501(25)) DELAY REC+12V
(TO IC4401(16)) Hi-Fi DELAY REC(H)
(WITH Hi-Fi AUDIO)
(WITH Hi-Fi AUDIO)
(TO/FROM IC4201(17)) (TO/FROM IC3001(8)) I²C SERIAL DATA
(TO IC4201(16)) (TO IC3001(7)) I²C SERIAL CLOCK
14 I²C SERIAL DATA
15 I²C SERIAL DATA
49 I²C SERIAL CLOCK
SCAN 2 2
SCAN 1 1
*1
J6311
J6323
J6327
J6308
J6316
J6320
J6336
KEY DATA 0 93
KEY DATA 1 92
KEY DATA 2 91
KEY DATA 3 90
KEY DATA 4 89
KEY DATA 5 88
KEY DATA 6 87
KEY DATA 7 86
+5V
J6309
J6313
J6317
J6321
J6325
J6329
J6333
J6337

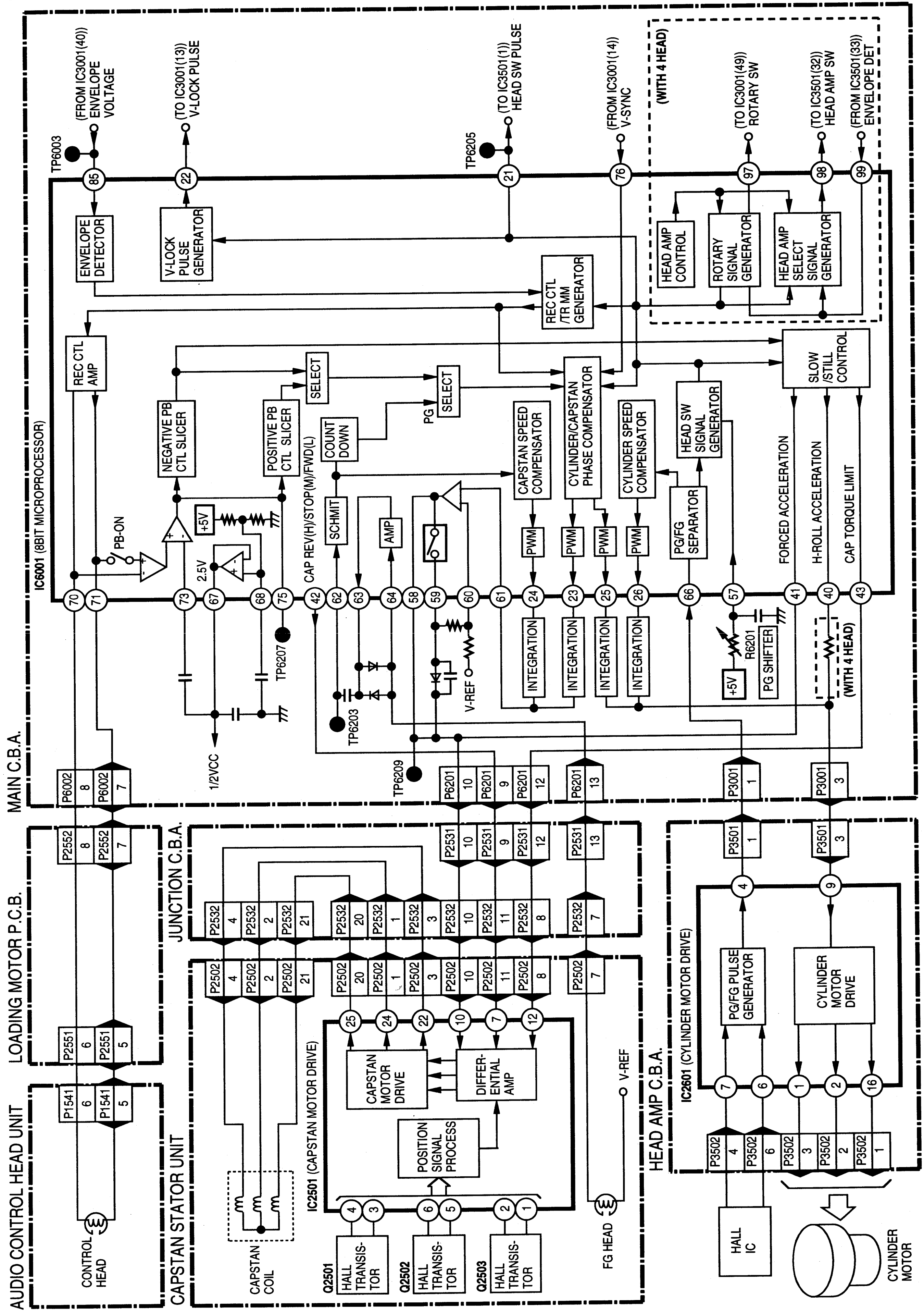
SW6002 (MODE SELECT SWITCH)

PIN NO. OF IC6001 / MODE	A (96)	B (95)	C (94)
FF/REW	H	H	L
BRAKE	L	H	H
PLAY/CUE/SLOW/STILL	L	H	L
REVIEW	H	L	L
STANDBY/STOP	H	L	H
CASSETTE DOWN	L	L	H
EJECT	L	L	L

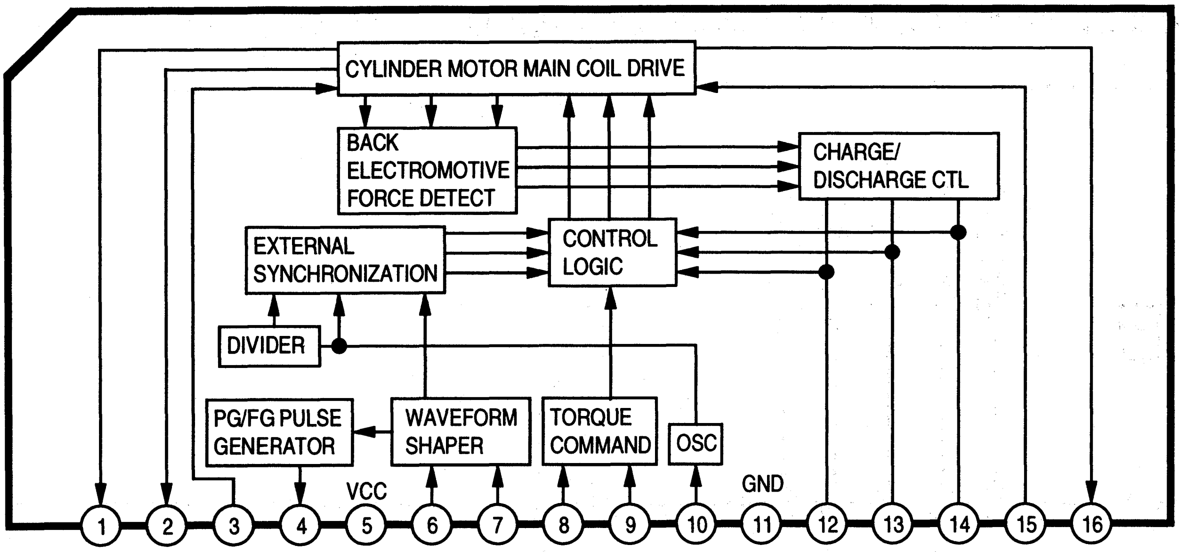
*1 I/O MATRIX CHART

J6308	WITH FIP-D
J6311	WITH Hi-Fi AUDIO
J6316	WITH SPATIALIZER
J6320	WITH PX MODEL
J6323	WITH VCR PLUS
J6327	WITH VCR PLUS AND CABLE CHANNEL CHANGER
J6336	---------------

SERVO BLOCK DIAGRAM

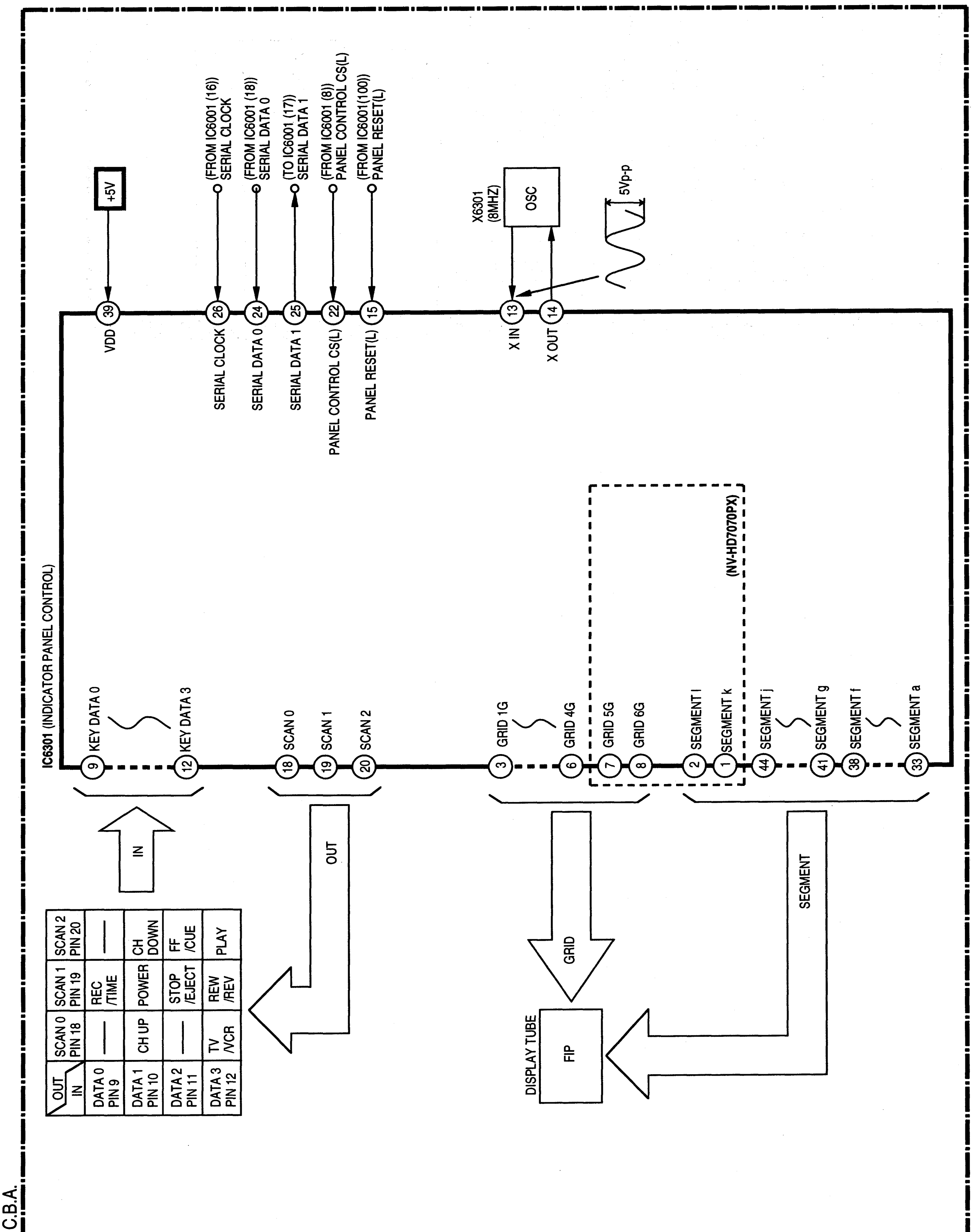

MAIN C.B.A.
IC6001 (8BIT MICROPROCESSOR)
(FROM IC3001(40)) ENVELOPE VOLTAGE
(TO IC3001(13)) V-LOCK PULSE
(TO IC3501(1)) HEAD SW PULSE
(FROM IC3001(14)) V-SYNC
(WITH 4 HEAD)
(TO IC3001(49)) ROTARY SW
(TO IC3501(32)) HEAD AMP SW
(FROM IC3501(33)) ENVELOPE DET
TP6003
TP6205
TP6207
TP6203
TP6209
ENVELOPE DETECTOR
V-LOCK PULSE GENERATOR
REC CTL /TR MM GENERATOR
HEAD AMP CONTROL
ROTARY SIGNAL GENERATOR
HEAD AMP SELECT SIGNAL GENERATOR
REC CTL AMP
NEGATIVE PB CTL SLICER
POSITIVE PB CTL SLICER
SELECT
SELECT
PG
COUNT DOWN
CAPSTAN SPEED COMPENSATOR
CYLINDER/CAPSTAN PHASE COMPENSATOR
CYLINDER SPEED COMPENSATOR
HEAD SW SIGNAL GENERATOR
SLOW /STILL CONTROL
PG/FG SEPARATOR
FORCED ACCELERATION
H-ROLL ACCELERATION
CAP TORQUE LIMIT
PB-ON
+5V
2.5V
SCHMIT
AMP
PWM
PWM
PWM
PWM
CAP REV(H)/STOP(M)/FWD(L)
INTEGRATION
INTEGRATION
INTEGRATION
INTEGRATION
R6201
PG SHIFTER
+5V
(WITH 4 HEAD)
V-REF
1/2VCC
85
22
21
76
97
98
99
70
71
73
67
68
75
42
62
63
64
58
59
60
61
24
23
25
26
66
57
41
40
43
P6002 8
P6002 7
P6201 10
P6201 9
P6201 12
P6201 13
P3001 1
P3001 3
LOADING MOTOR P.C.B.
P2552 8
P2552 7
P2551 6
P2551 5
JUNCTION C.B.A.
P2531 10
P2531 9
P2531 12
P2531 13
P2532 4
P2532 2
P2532 21
P2532 20
P2532 1
P2532 3
P2532 10
P2532 11
P2532 8
P2532 7
AUDIO CONTROL HEAD UNIT
P1541 6
P1541 5
CONTROL HEAD
CAPSTAN STATOR UNIT
P2502 4
P2502 2
P2502 21
P2502 20
P2502 1
P2502 3
P2502 10
P2502 11
P2502 8
P2502 7
IC2501 (CAPSTAN MOTOR DRIVE)
25
24
22
10
7
12
CAPSTAN MOTOR DRIVE
DIFFER-ENTIAL AMP
POSITION SIGNAL PROCESS
4
3
6
5
2
1
CAPSTAN COIL
Q2501 HALL TRANSIS-TOR
Q2502 HALL TRANSIS-TOR
Q2503 HALL TRANSIS-TOR
FG HEAD
V-REF
HEAD AMP C.B.A.
P3501 1
P3501 3
IC2601 (CYLINDER MOTOR DRIVE)
4
9
PG/FG PULSE GENERATOR
CYLINDER MOTOR DRIVE
7
6
1
2
16
P3502 4
P3502 6
P3502 3
P3502 2
P3502 1
HALL IC
CYLINDER MOTOR

IC2601 CYLINDER MOTOR DRIVE IC-BLOCK DIAGRAM, AN3809K


CYLINDER MOTOR MAIN COIL DRIVE
BACK ELECTROMOTIVE FORCE DETECT
CHARGE/ DISCHARGE CTL
EXTERNAL SYNCHRONIZATION
CONTROL LOGIC
DIVIDER
PG/FG PULSE GENERATOR
WAVEFORM SHAPER
TORQUE COMMAND
OSC
VCC
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

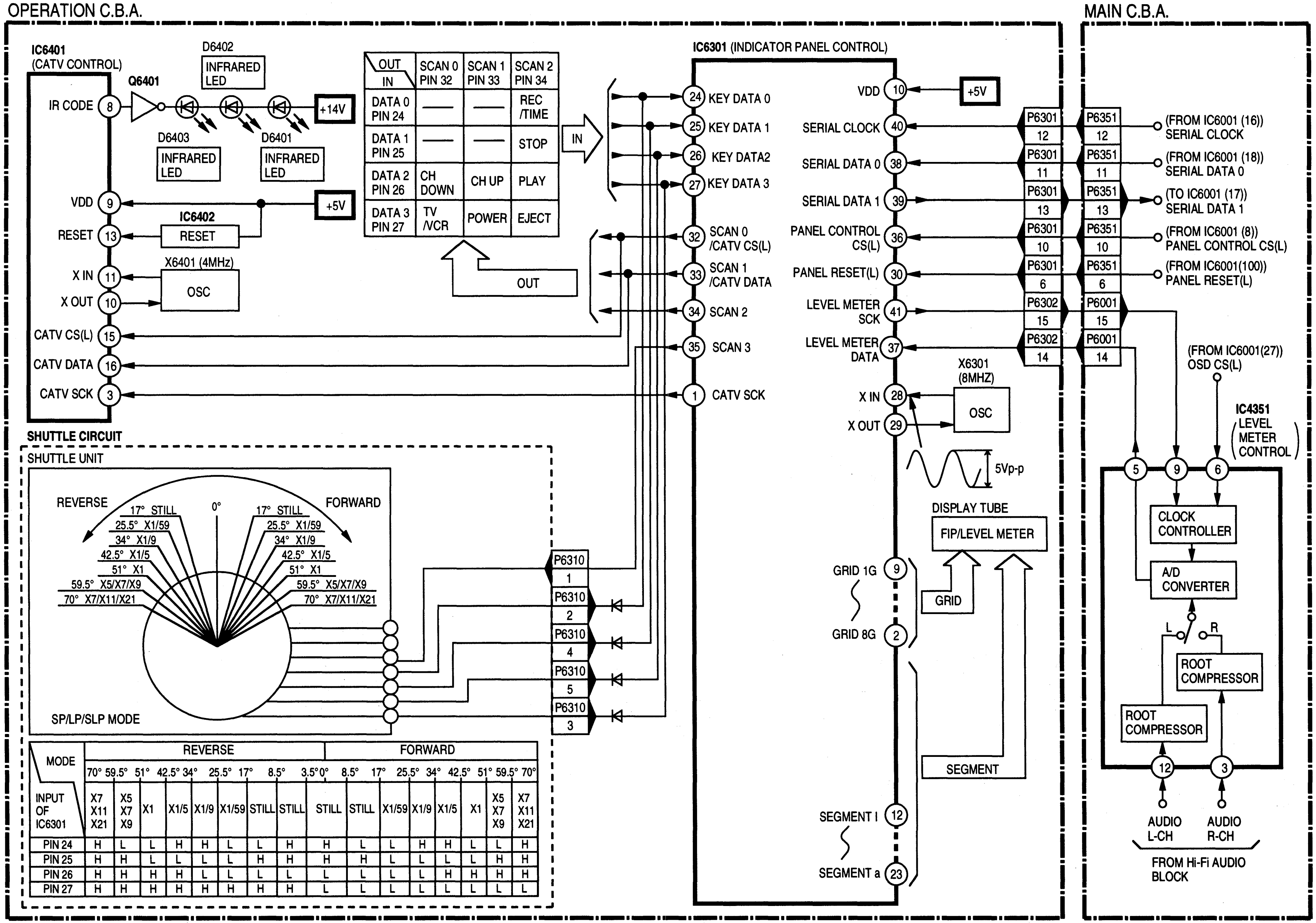
OPERATION BLOCK DIAGRAM

(NV-SD220PMP/NV-SD7020PX/NV-SD7040PX/NV-HD7060PX/NV-HD7070PX)


MAIN C.B.A.
IC6301 (INDICATOR PANEL CONTROL)
+5V
VDD
39
(FROM IC6001 (16)) SERIAL CLOCK
(FROM IC6001 (18)) SERIAL DATA 0
(TO IC6001 (17)) SERIAL DATA 1
(FROM IC6001 (8)) PANEL CONTROL CS(L)
(FROM IC6001(100)) PANEL RESET(L)
26
24
25
22
15
SERIAL CLOCK
SERIAL DATA 0
SERIAL DATA 1
PANEL CONTROL CS(L)
PANEL RESET(L)
X6301 (8MHZ)
OSC
5Vp-p
13
14
X IN
X OUT
(NV-HD7070PX)
9
KEY DATA 0
12
KEY DATA 3
18
SCAN 0
19
SCAN 1
20
SCAN 2
3
GRID 1G
6
GRID 4G
7
GRID 5G
8
GRID 6G
2
SEGMENT l
1
SEGMENT k
44
SEGMENT j
41
SEGMENT g
38
SEGMENT f
33
SEGMENT a
IN
OUT
GRID
SEGMENT
DISPLAY TUBE
FIP

OUT \ IN	SCAN 0 PIN 18	SCAN 1 PIN 19	SCAN 2 PIN 20
DATA 0 PIN 9	—	REC /TIME	—
DATA 1 PIN 10	CH UP	POWER	CH DOWN
DATA 2 PIN 11	—	STOP /EJECT	FF /CUE
DATA 3 PIN 12	TV /VCR	REW /REV	PLAY

OPERATION BLOCK DIAGRAM (NV-HD7080PX)

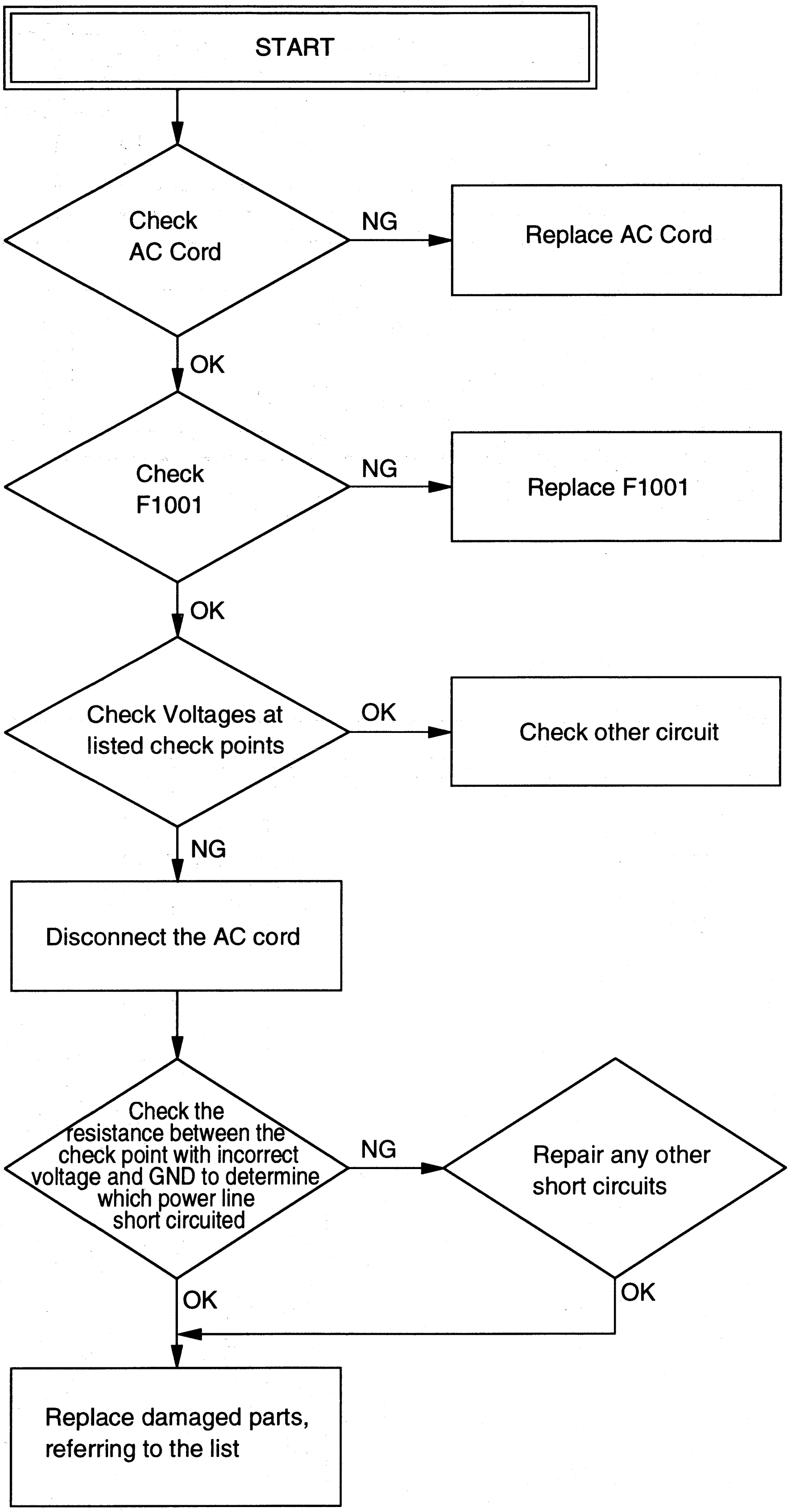

OPERATION C.B.A.
MAIN C.B.A.
IC6401 (CATV CONTROL)
IR CODE 8
VDD 9
RESET 13
X IN 11
X OUT 10
CATV CS(L) 15
CATV DATA 16
CATV SCK 3
Q6401
D6402 INFRARED LED
D6403 INFRARED LED
D6401 INFRARED LED
+14V
+5V
IC6402 RESET
X6401 (4MHz) OSC
IN
OUT
IC6301 (INDICATOR PANEL CONTROL)
24 KEY DATA 0
25 KEY DATA 1
26 KEY DATA2
27 KEY DATA 3
32 SCAN 0 /CATV CS(L)
33 SCAN 1 /CATV DATA
34 SCAN 2
35 SCAN 3
1 CATV SCK
VDD 10
+5V
SERIAL CLOCK 40
SERIAL DATA 0 38
SERIAL DATA 1 39
PANEL CONTROL CS(L) 36
PANEL RESET(L) 30
LEVEL METER SCK 41
LEVEL METER DATA 37
X IN 28
X OUT 29
X6301 (8MHZ)
OSC
5Vp-p
DISPLAY TUBE
FIP/LEVEL METER
GRID
SEGMENT
GRID 1G 9
GRID 8G 2
SEGMENT l 12
SEGMENT a 23
P6301 12
P6301 11
P6301 13
P6301 10
P6301 6
P6302 15
P6302 14
P6351 12
P6351 11
P6351 13
P6351 10
P6351 6
P6001 15
P6001 14
(FROM IC6001 (16)) SERIAL CLOCK
(FROM IC6001 (18)) SERIAL DATA 0
(TO IC6001 (17)) SERIAL DATA 1
(FROM IC6001 (8)) PANEL CONTROL CS(L)
(FROM IC6001(100)) PANEL RESET(L)
(FROM IC6001(27)) OSD CS(L)
IC4351 (LEVEL METER CONTROL)
5
9
6
CLOCK CONTROLLER
A/D CONVERTER
L
R
ROOT COMPRESSOR
ROOT COMPRESSOR
12
3
AUDIO L-CH
AUDIO R-CH
FROM Hi-Fi AUDIO BLOCK
SHUTTLE CIRCUIT
SHUTTLE UNIT
REVERSE
FORWARD
0°
17° STILL
25.5° X1/59
34° X1/9
42.5° X1/5
51° X1
59.5° X5/X7/X9
70° X7/X11/X21
17° STILL
25.5° X1/59
34° X1/9
42.5° X1/5
51° X1
59.5° X5/X7/X9
70° X7/X11/X21
SP/LP/SLP MODE
P6310 1
P6310 2
P6310 4
P6310 5
P6310 3

OUT / IN	SCAN 0 PIN 32	SCAN 1 PIN 33	SCAN 2 PIN 34
DATA 0 PIN 24	—	—	REC /TIME
DATA 1 PIN 25	—	—	STOP
DATA 2 PIN 26	CH DOWN	CH UP	PLAY
DATA 3 PIN 27	TV /VCR	POWER	EJECT

MODE	REVERSE								FORWARD							
	70° 59.5°	59.5° 51°	51° 42.5°	42.5° 34°	34° 25.5°	25.5° 17°	17° 8.5°	8.5° 3.5°	3.5° 0° 8.5°	8.5° 17°	17° 25.5°	25.5° 34°	34° 42.5°	42.5° 51°	51° 59.5°	59.5° 70°
INPUT OF IC6301	X7 X11 X21	X5 X7 X9	X1	X1/5	X1/9	X1/59	STILL	STILL	STILL	STILL	X1/59	X1/9	X1/5	X1	X5 X7 X9	X7 X11 X21
PIN 24	H	L	L	H	H	L	L	H	H	L	L	H	H	L	L	H
PIN 25	H	H	L	L	L	L	H	H	H	H	L	L	L	L	H	H
PIN 26	H	H	H	H	L	L	L	L	L	L	L	L	H	H	H	H
PIN 27	H	H	H	H	H	H	H	H	L	L	L	L	L	L	L	L

TROUBLESHOOTING HINTS

Power Supply Section


START
Check AC Cord
NG
Replace AC Cord
OK
Check F1001
NG
Replace F1001
OK
Check Voltages at listed check points
OK
Check other circuit
NG
Disconnect the AC cord
Check the resistance between the check point with incorrect voltage and GND to determine which power line short circuited
NG
Repair any other short circuits
OK
OK
Replace damaged parts, referring to the list

Voltage and Resistance of Power Line

Check Points (Power Supply C.B.A.)	Voltage	Resistance
Pin7 of P1001 (DC+44V)	44.5V	More than 500 ohm
Pin6 of P1001 (DC+14V)	13.5V	More than 30 ohm
Pin2 of P1001 (DC-30V)	-30.7V	More than 5k ohm
Pin4 of P1001 (DC+5V)	5.2V	More than 25 ohm
Pin5 of P1001 (DC+5V)	5.2V	More than 25 ohm
Pin9 of P1001 (F +)	-25.0V	More than 1k ohm
Pin8 of P1001 (F -)	-20.4V	More than 1k ohm
Pin3 of P1001 (Power Down (L))	5.2V	More than 500 ohm

VOLTAGE: STOP mode under normal conditions.
RESISTANCE: Between Check points and GND with power off under normal conditions.
Note: The Voltages and Resistance listed are approximate.

When power line is short circuited, check the following parts. Replace if necessary.

(1). SHORT CIRCUIT AND REPLACEMENT PARTS ON POWER LINE.

	CONDITION OF SHORT CIRCUIT	DAMAGEABLE PARTS BY SHORT CIRCUIT
(1)	5V ➡ GND	*PR1001, *D1010, IC1002
(2)	44V ➡ GND	*D1007, *R1010
(3)	14V ➡ GND 12V ➡ GND	D1008, *D1013, Q1051, *Q1052 D1051, D1052, D1053, *PR1054
(4)	-30V ➡ GND	*R1011, *D1009, *R1055
(5)	44V ➡ 14V	D1008, *D1013, Q1051, *Q1052 D1051, D1052, D1053, *PR1054
(6)	-30V ➡ 5V	REPLACE THE ALL OF PARTS OF (1) AND (4)
(7)	14V ➡ 12V	*Q1051, *Q1052, D1051, D1052, D1053, *PR1054
(8)	44V ➡ POWER DOWN(L)	*IC1002, D1007, R1010

*NOTE1: When a short circuit occurs supplying the Power for a long time will cause the fuse to blow.
*NOTE2: Parts with * mark are the most susceptible to damage in case of short circuit. Please check them first.

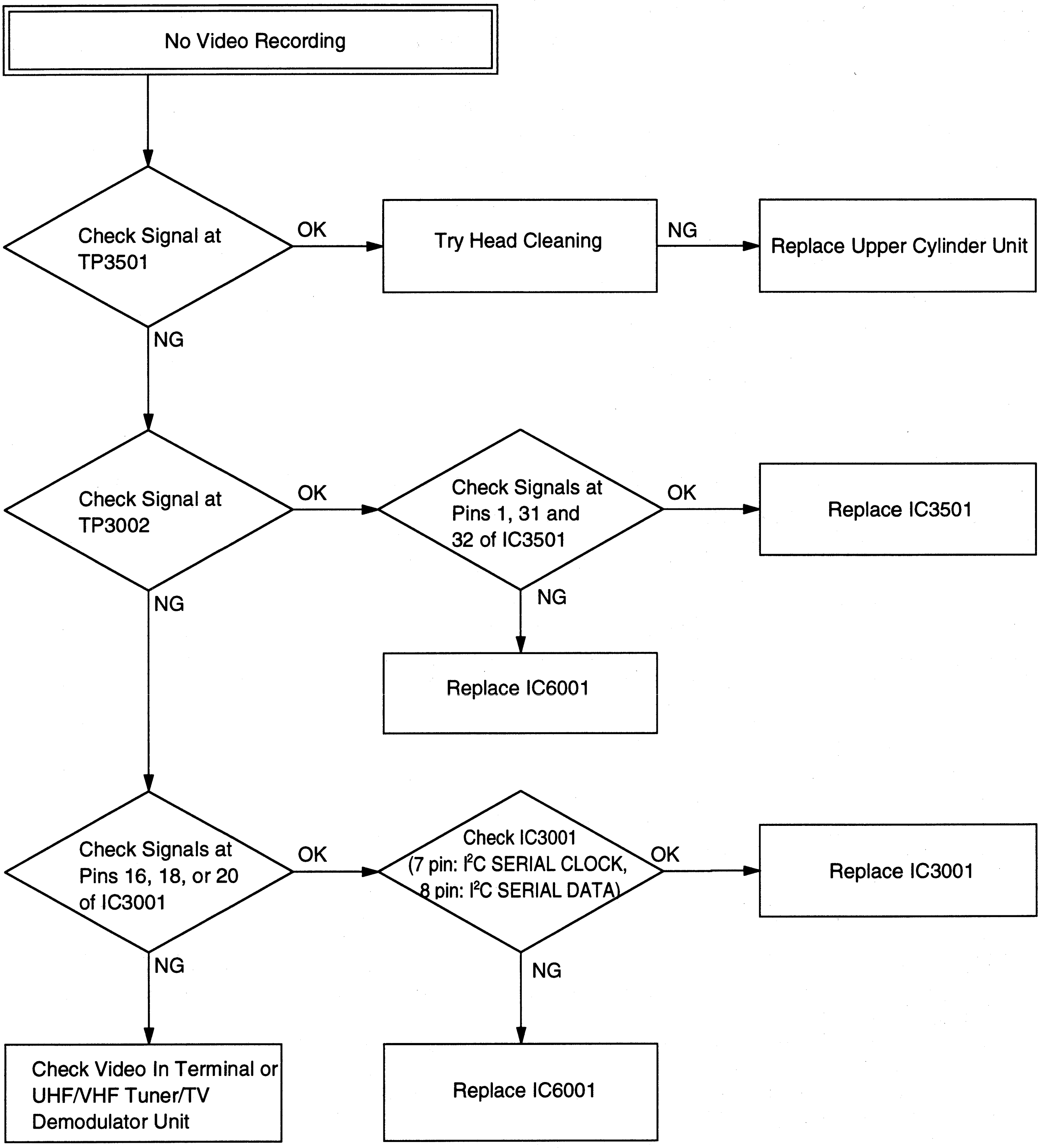
(2). IN CASE OF FUSE(F1001) BLOW.

Replace Parts F1001, Q1001, Q1002, Q1003, D1001(very rarely has problems), D1013.
Cause ➡ It may be caused by a short circuit of 5V or 14V.

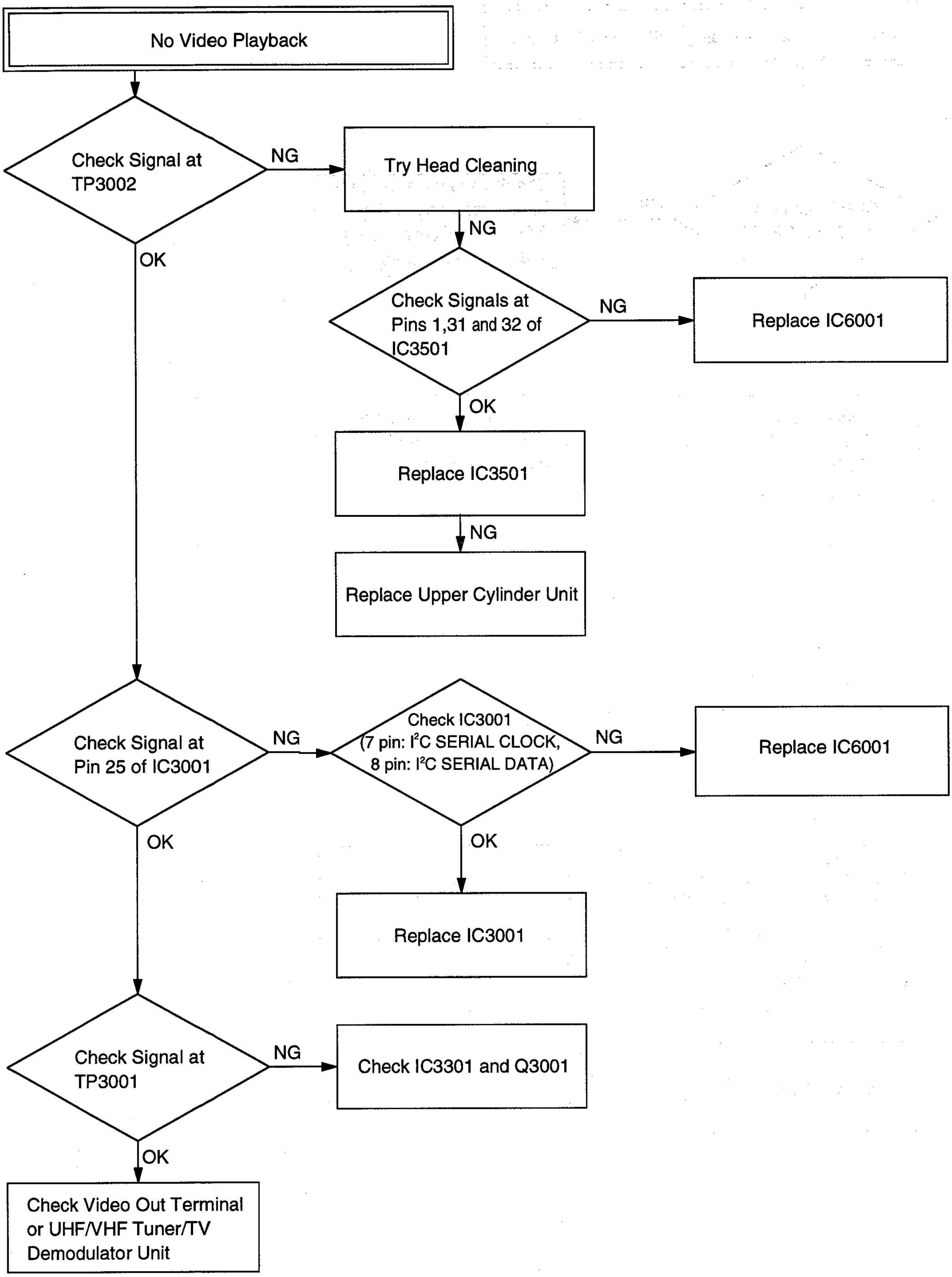
(3). JUST AFTER TURNING POWER ON, ABNORMAL NOISE CAN BE HEARD FROM POWER SUPPLY UNIT.

Replace Parts D1013, D1010, D1009, R1011.
Cause ➡ It may be caused by a short circuit of 5V, -30V, 14V.
In this condition, supplying the Power for a long time will causes the fuse to blow.

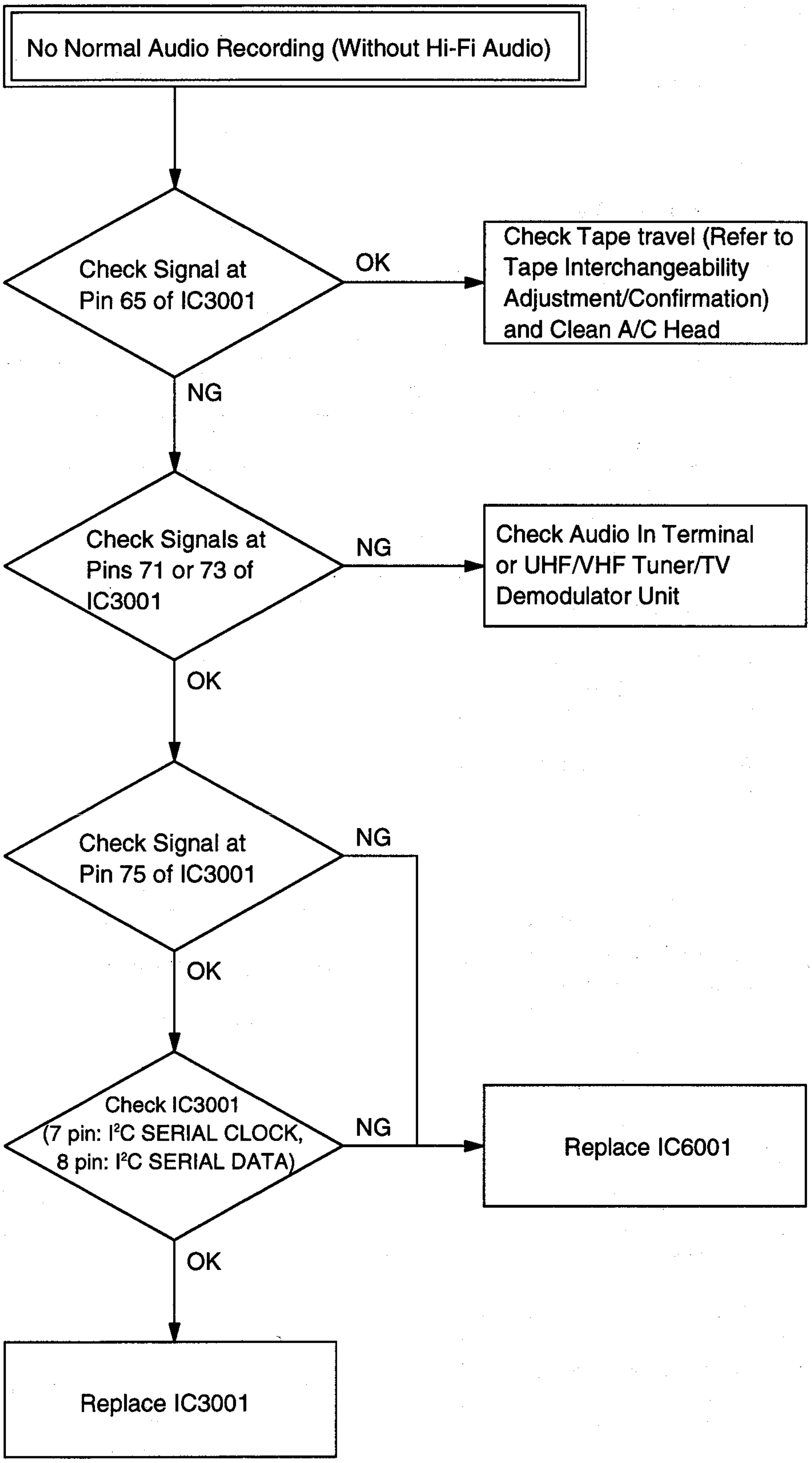
Video Section


No Video Recording
Check Signal at TP3501
OK
Try Head Cleaning
NG
Replace Upper Cylinder Unit
NG
Check Signal at TP3002
OK
Check Signals at Pins 1, 31 and 32 of IC3501
OK
Replace IC3501
NG
Replace IC6001
NG
Check Signals at Pins 16, 18, or 20 of IC3001
OK
Check IC3001 (7 pin: I²C SERIAL CLOCK, 8 pin: I²C SERIAL DATA)
OK
Replace IC3001
NG
Check Video In Terminal or UHF/VHF Tuner/TV Demodulator Unit
NG
Replace IC6001

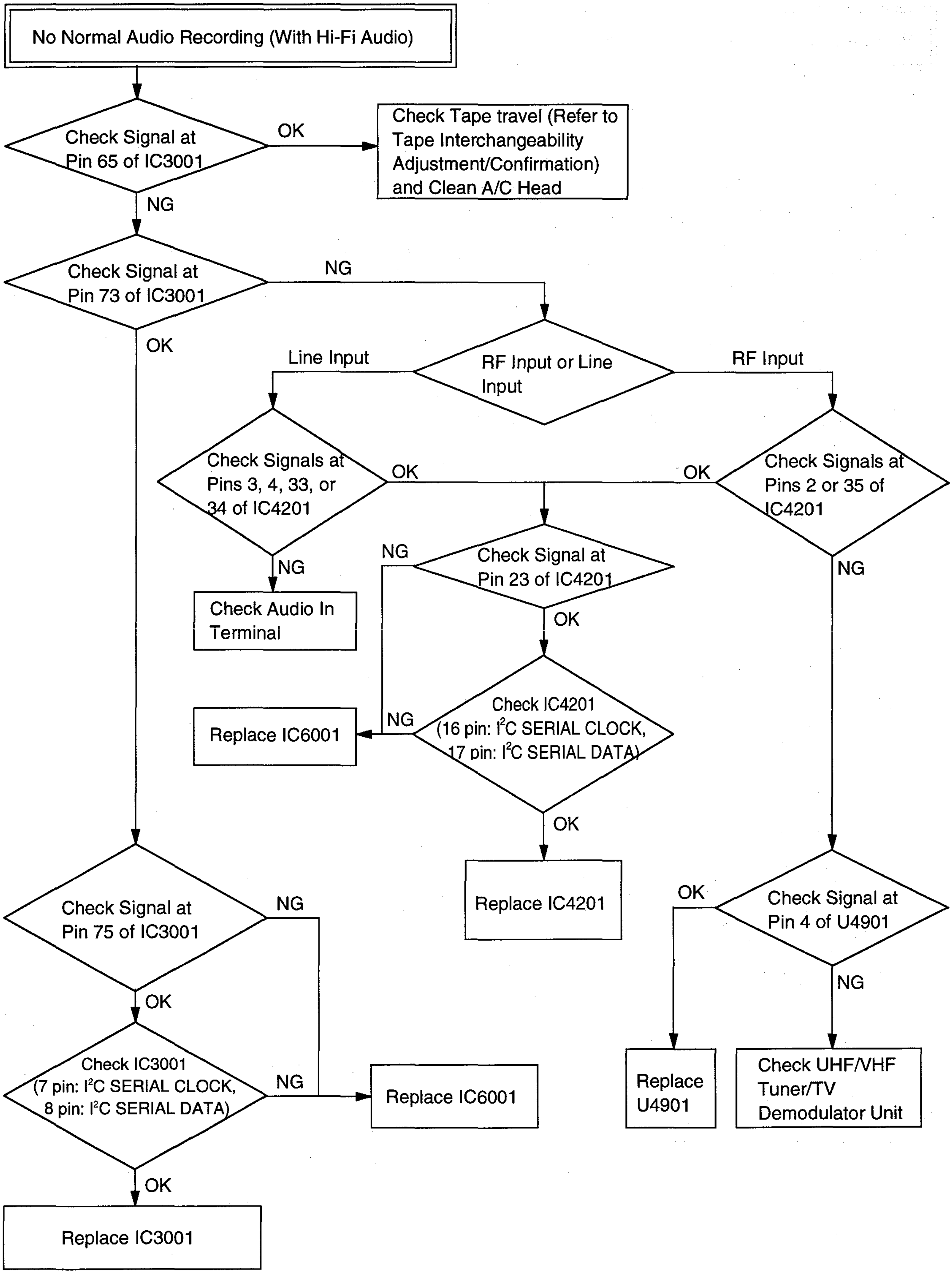
Video Section


No Video Playback
Check Signal at TP3002
NG
Try Head Cleaning
NG
Check Signals at Pins 1,31 and 32 of IC3501
NG
Replace IC6001
OK
Replace IC3501
NG
Replace Upper Cylinder Unit
OK
Check Signal at Pin 25 of IC3001
NG
Check IC3001 (7 pin: I^2C SERIAL CLOCK, 8 pin: I^2C SERIAL DATA)
NG
Replace IC6001
OK
Replace IC3001
OK
Check Signal at TP3001
NG
Check IC3301 and Q3001
OK
Check Video Out Terminal or UHF/VHF Tuner/TV Demodulator Unit

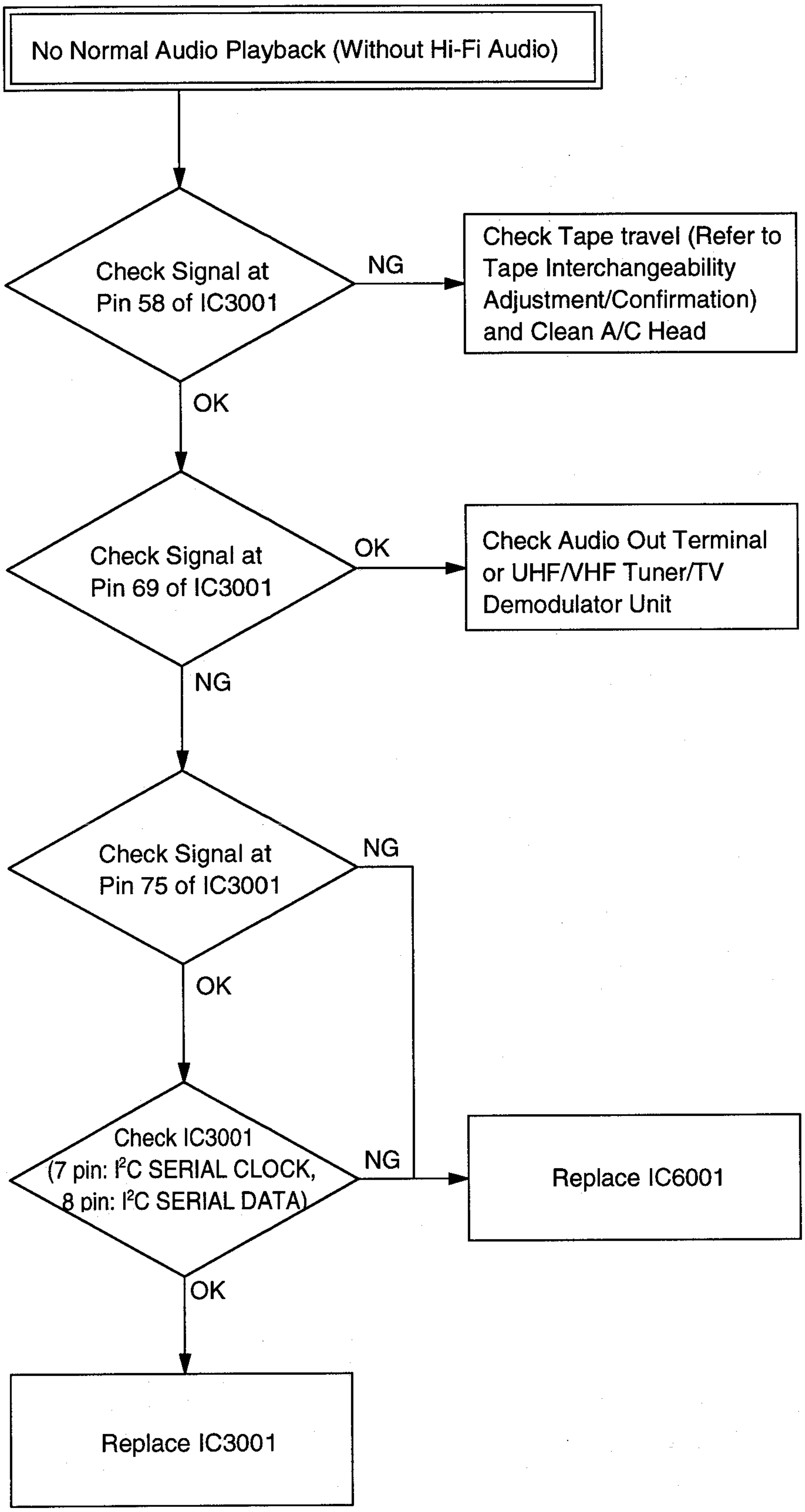
Audio Section


No Normal Audio Recording (Without Hi-Fi Audio)
Check Signal at Pin 65 of IC3001
OK
Check Tape travel (Refer to Tape Interchangeability Adjustment/Confirmation) and Clean A/C Head
NG
Check Signals at Pins 71 or 73 of IC3001
NG
Check Audio In Terminal or UHF/VHF Tuner/TV Demodulator Unit
OK
Check Signal at Pin 75 of IC3001
NG
OK
Check IC3001 (7 pin: I²C SERIAL CLOCK, 8 pin: I²C SERIAL DATA)
NG
Replace IC6001
OK
Replace IC3001

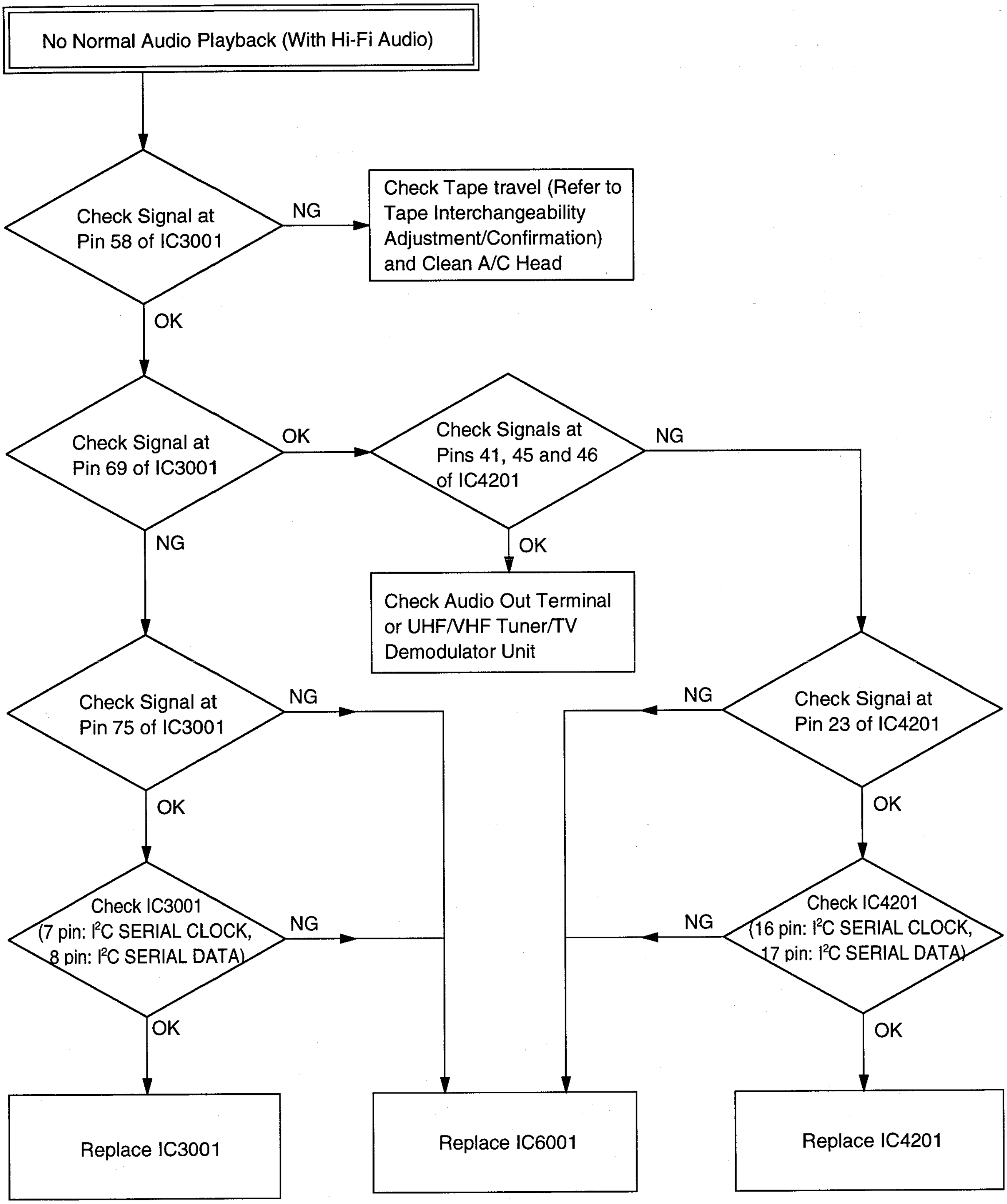
Audio Section


No Normal Audio Recording (With Hi-Fi Audio)
Check Signal at Pin 65 of IC3001
OK
Check Tape travel (Refer to Tape Interchangeability Adjustment/Confirmation) and Clean A/C Head
NG
Check Signal at Pin 73 of IC3001
NG
OK
Line Input
RF Input or Line Input
RF Input
Check Signals at Pins 3, 4, 33, or 34 of IC4201
OK
OK
Check Signals at Pins 2 or 35 of IC4201
NG
NG
Check Signal at Pin 23 of IC4201
NG
Check Audio In Terminal
OK
Check IC4201 (16 pin: I^2C SERIAL CLOCK, 17 pin: I^2C SERIAL DATA)
NG
Replace IC6001
OK
Replace IC4201
Check Signal at Pin 75 of IC3001
NG
OK
Check Signal at Pin 4 of U4901
NG
OK
Check IC3001 (7 pin: I^2C SERIAL CLOCK, 8 pin: I^2C SERIAL DATA)
NG
Replace IC6001
Replace U4901
Check UHF/VHF Tuner/TV Demodulator Unit
OK
Replace IC3001

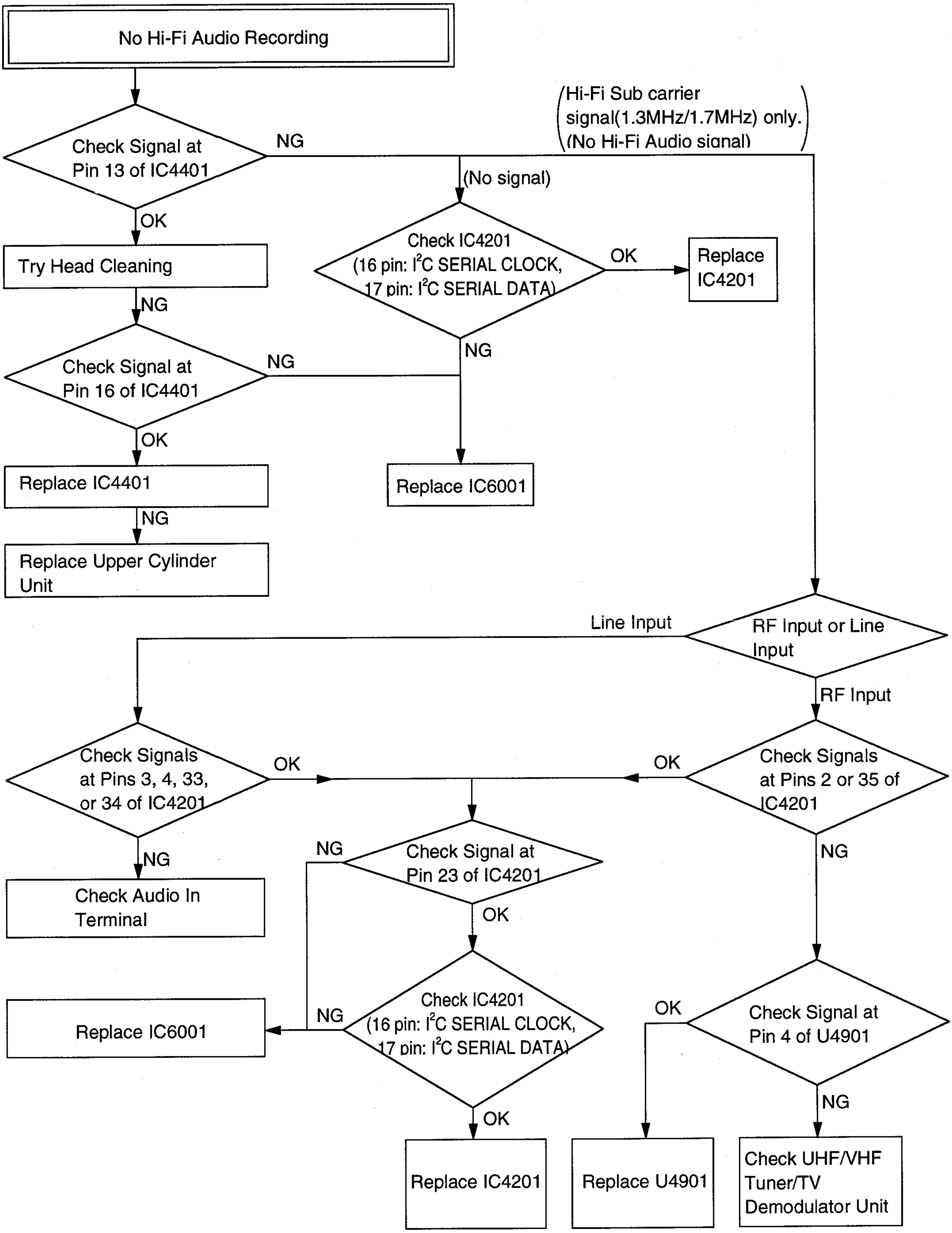
Audio Section


No Normal Audio Playback (Without Hi-Fi Audio)
Check Signal at Pin 58 of IC3001
NG
Check Tape travel (Refer to Tape Interchangeability Adjustment/Confirmation) and Clean A/C Head
OK
Check Signal at Pin 69 of IC3001
OK
Check Audio Out Terminal or UHF/VHF Tuner/TV Demodulator Unit
NG
Check Signal at Pin 75 of IC3001
NG
OK
Check IC3001 (7 pin: I²C SERIAL CLOCK, 8 pin: I²C SERIAL DATA)
NG
Replace IC6001
OK
Replace IC3001

Audio Section

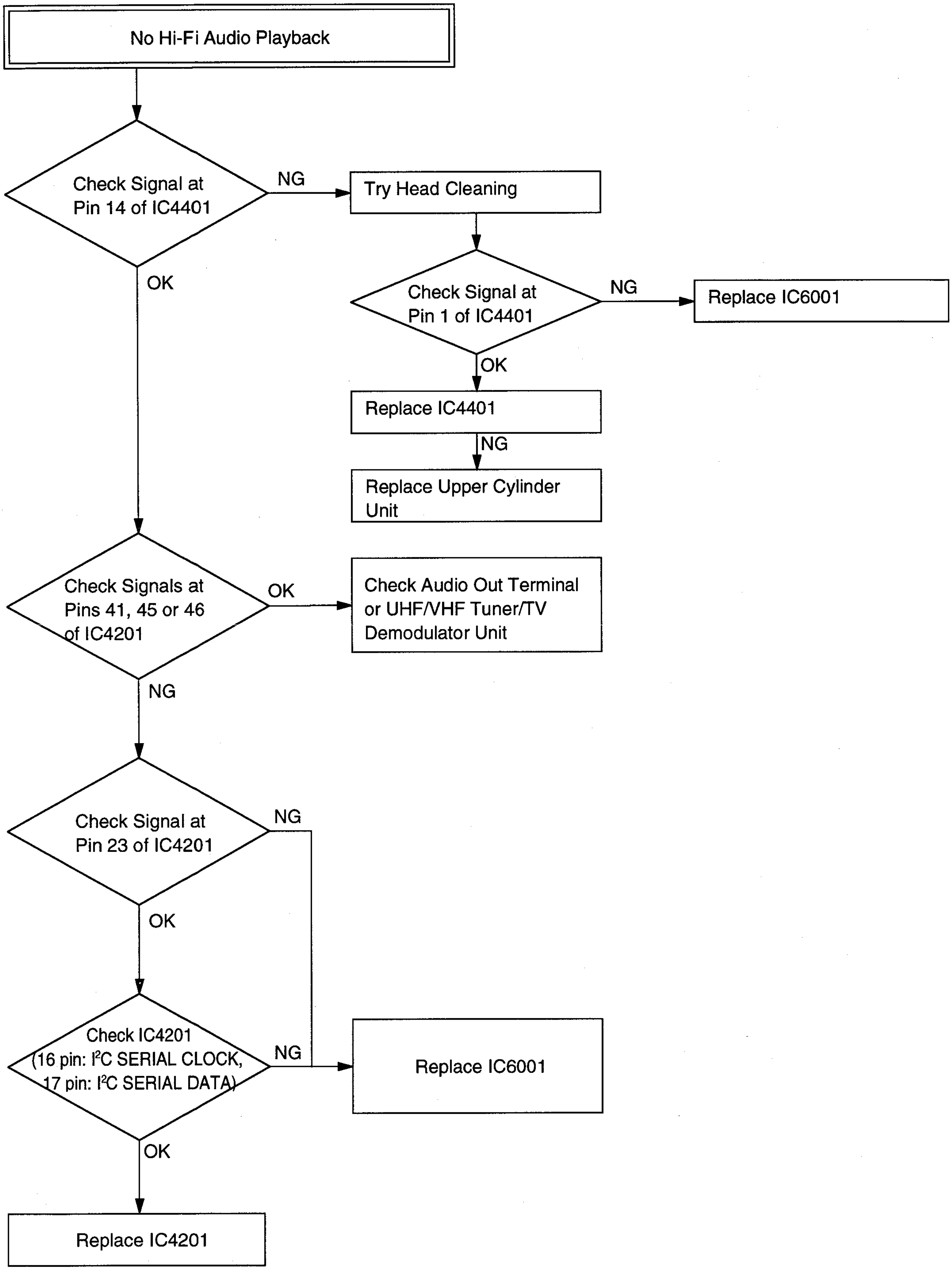

No Normal Audio Playback (With Hi-Fi Audio)
Check Signal at Pin 58 of IC3001
NG
Check Tape travel (Refer to Tape Interchangeability Adjustment/Confirmation) and Clean A/C Head
OK
Check Signal at Pin 69 of IC3001
OK
Check Signals at Pins 41, 45 and 46 of IC4201
NG
OK
NG
Check Audio Out Terminal or UHF/VHF Tuner/TV Demodulator Unit
Check Signal at Pin 75 of IC3001
NG
NG
Check Signal at Pin 23 of IC4201
OK
OK
Check IC3001 (7 pin: I²C SERIAL CLOCK, 8 pin: I²C SERIAL DATA)
NG
NG
Check IC4201 (16 pin: I²C SERIAL CLOCK, 17 pin: I²C SERIAL DATA)
OK
OK
Replace IC3001
Replace IC6001
Replace IC4201

Hi-Fi Audio Section



No Hi-Fi Audio Recording
Check Signal at Pin 13 of IC4401
NG
Hi-Fi Sub carrier signal(1.3MHz/1.7MHz) only. (No Hi-Fi Audio signal)
(No signal)
OK
Try Head Cleaning
Check IC4201 (16 pin: I²C SERIAL CLOCK, 17 pin: I²C SERIAL DATA)
OK
Replace IC4201
NG
NG
Check Signal at Pin 16 of IC4401
NG
OK
Replace IC4401
Replace IC6001
NG
Replace Upper Cylinder Unit
Line Input
RF Input or Line Input
RF Input
Check Signals at Pins 3, 4, 33, or 34 of IC4201
OK
OK
Check Signals at Pins 2 or 35 of IC4201
NG
NG
Check Signal at Pin 23 of IC4201
NG
Check Audio In Terminal
OK
Replace IC6001
NG
Check IC4201 (16 pin: I²C SERIAL CLOCK, 17 pin: I²C SERIAL DATA)
OK
Check Signal at Pin 4 of U4901
OK
NG
Replace IC4201
Replace U4901
Check UHF/VHF Tuner/TV Demodulator Unit

Hi-Fi Audio Section


No Hi-Fi Audio Playback
Check Signal at Pin 14 of IC4401
NG
Try Head Cleaning
OK
Check Signal at Pin 1 of IC4401
NG
Replace IC6001
OK
Replace IC4401
NG
Replace Upper Cylinder Unit
Check Signals at Pins 41, 45 or 46 of IC4201
OK
Check Audio Out Terminal or UHF/VHF Tuner/TV Demodulator Unit
NG
Check Signal at Pin 23 of IC4201
NG
OK
Check IC4201 (16 pin: I²C SERIAL CLOCK, 17 pin: I²C SERIAL DATA)
NG
Replace IC6001
OK
Replace IC4201

— MEMO —

EXPLODED VIEWS

❶ MECHANISM (TOP) SECTION

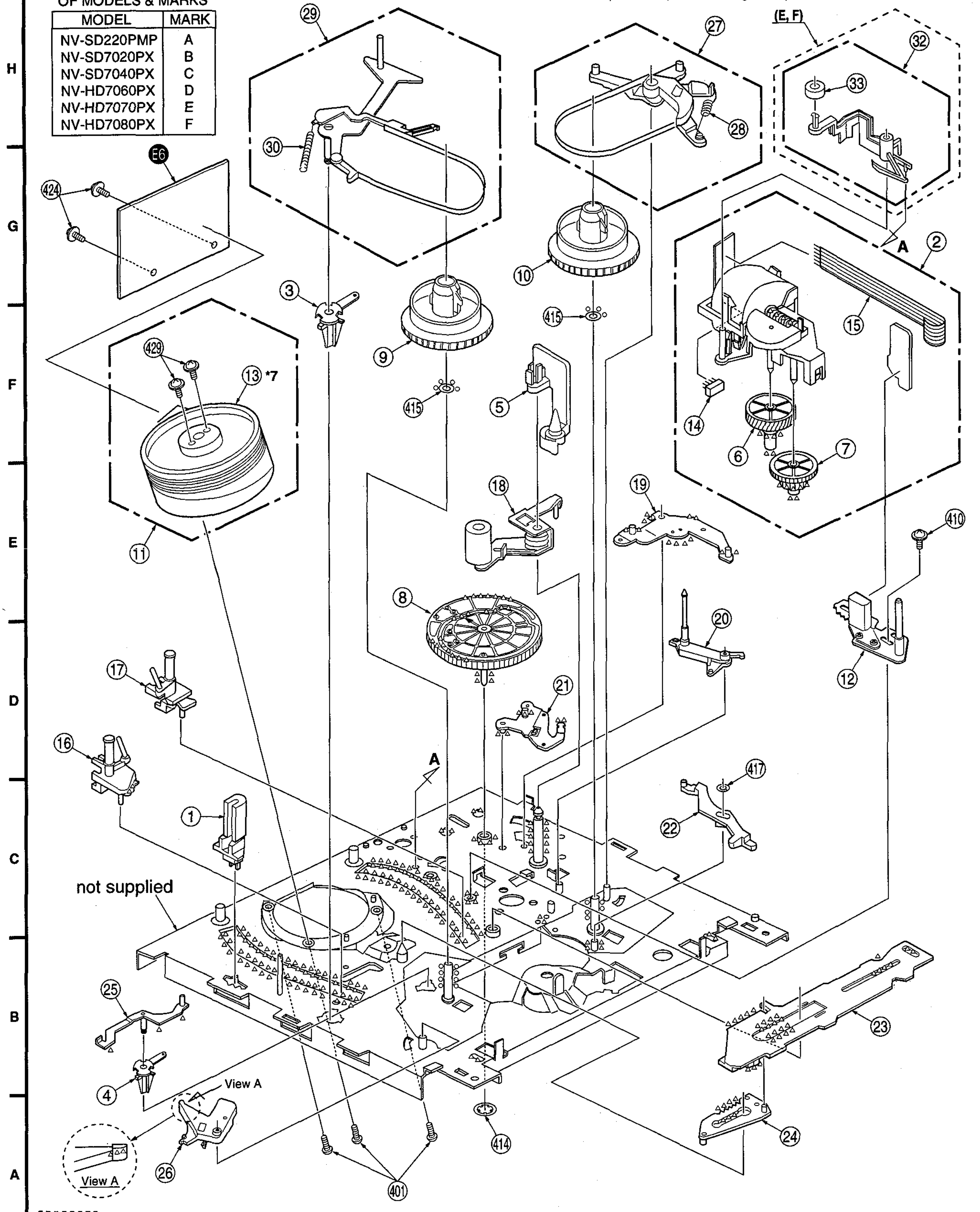
LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
×××	Silicon Grease	Available from Factory	VFK1301
○○○	Spindle Oil	Purchase from Local Supplier	--------
△△△	Grease	Available from Factory	VFKS0081

Note: Parts with no Ref. No. in "EXPLODED VIEW" are not supplied.
And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F


H
G
F
E
D
C
B
A
㉙
㉗
(E, F)
㉜
㉝
㉚
㉘
E6
(424)
②
A
⑩
③
(415)
⑮
⑨
(429)
⑬ *7
(415)
⑤
⑭
⑥
⑦
⑱
⑲
⑪
(410)
⑧
⑳
⑰
⑫
㉑
⑯
A
(417)
①
㉒
not supplied
㉕
㉓
④
View A
㉖
(414)
㉔
View A
(401)
1
2
3
4
5
6

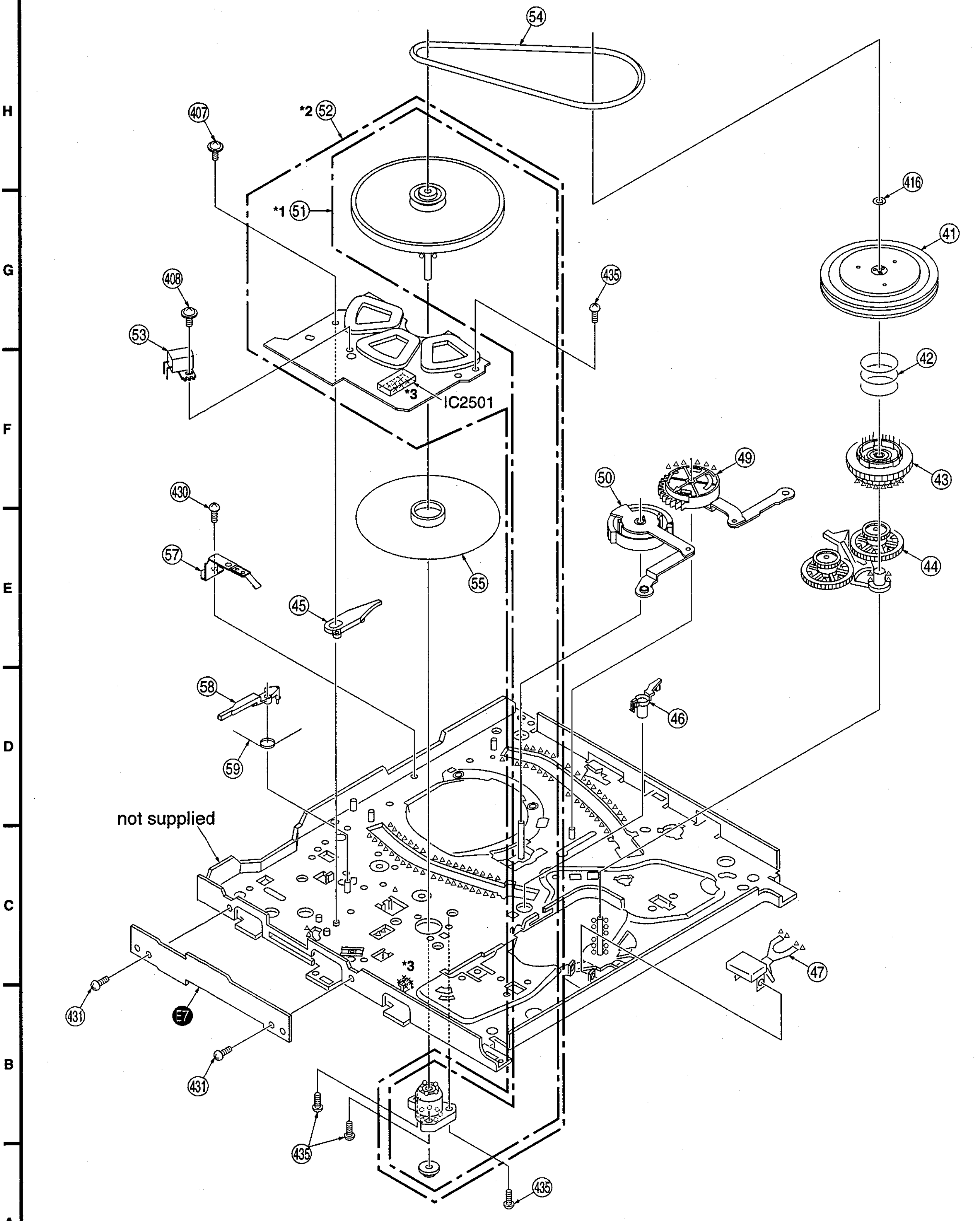
Model: F

*7: Do not replace Upper Cylinder Units using Metal Heads with units using any other head materials. Otherwise, S/N Ratio will become noticeably worse.

❷ MECHANISM (BOTTOM) SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
×××	Silicon Grease	Available from Factory	VFK1301
○○○	Spindle Oil	Purchase from Local Supplier	--------
△△△	Grease	Available from Factory	VFKS0081



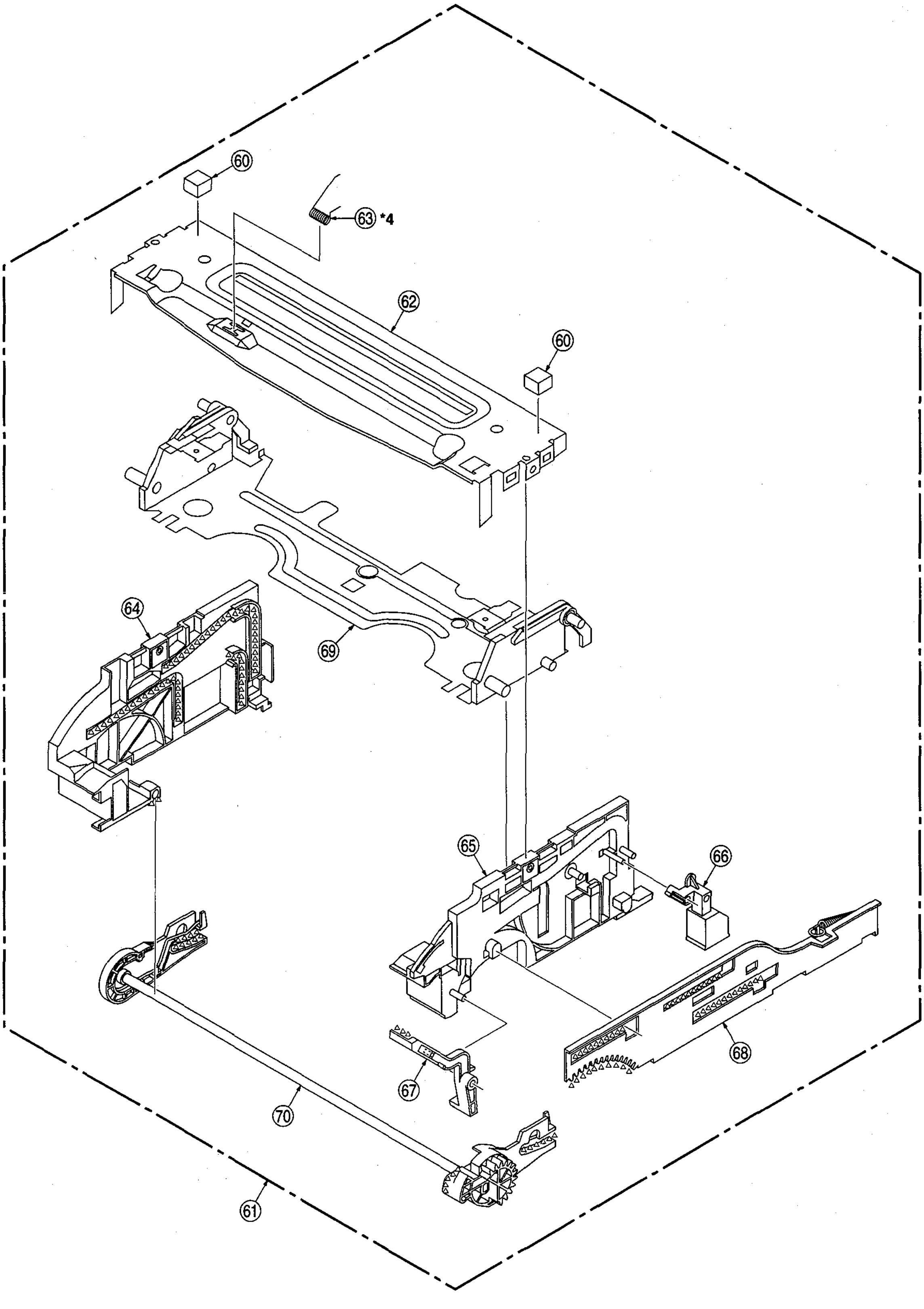
(54)
(407)
*2 (52)
*1 (51)
(416)
(41)
(408)
(435)
(53)
(42)
*3
IC2501
(49)
(50)
(43)
(430)
(44)
(57)
(55)
(45)
(58)
(46)
(59)
not supplied
(47)
*3
(431)
E7
(431)
(435)
(435)
H
G
F
E
D
C
B
A
1
2
3
4
5
6

*1: Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as a Capstan Rotor Kit only.
*2: Capstan Stator Unit, Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as a Capstan Stator Kit only.
However, IC2501 (AN3845SC) is available separately as a replacement part.
*3: When installing the IC2501 or Capstan Stator Unit, be sure to apply Silicon Grease (VFK1301).
Refer to "Capstan Stator Unit" of "Disassembly/Assembly Procedures of Mechanism" section for more information.

❸ CASSETTE UP COMPARTMENT SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
XXX	Silicon Grease	Available from Factory	VFK1301
OOO	Spindle Oil	Purchase from Local Supplier	--------
ΔΔΔ	Grease	Available from Factory	VFKS0081



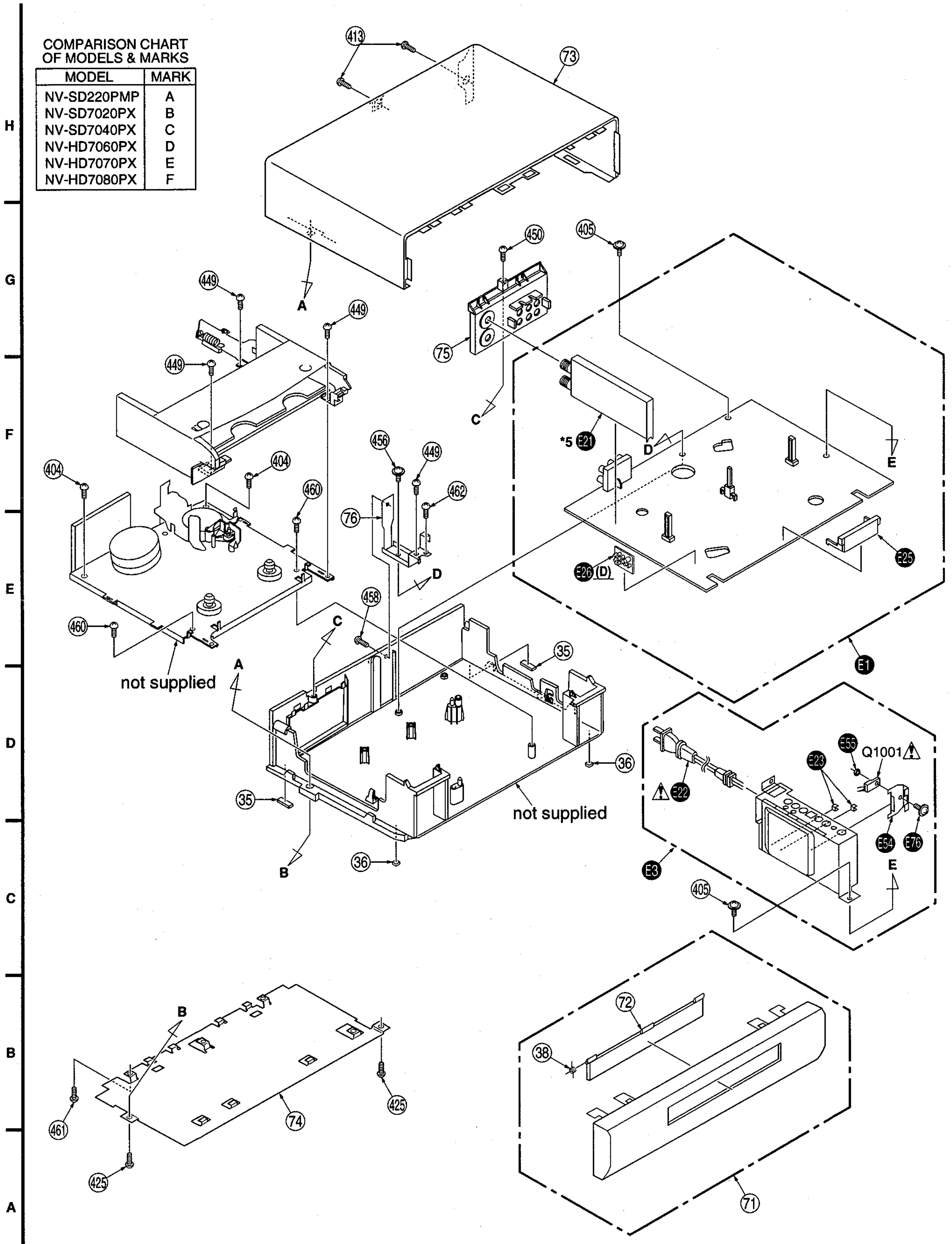
*4: As an ESD Countermeasure, the spring should be installed in the proper position.
Please refer to "Disassembly/Assembly Procedure of Cassette Up Ass'y" section for more information.

❹ CHASSIS FRAME AND CASING PARTS SECTION (Model: A, B, C, D)

IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F


H
G
F
E
D
C
B
A
413
73
A
449
450
405
449
75
449
C
*5 E21
D
E
404
404
456
449
460
462
76
D
E26 (D)
E25
458
C
35
E1
460
not supplied
A
36
35
not supplied
E55
Q1001⚠
E23
⚠E22
E54
E76
E3
E
36
B
405
B
72
38
461
74
425
425
71
1
2
3
4
5
6

---

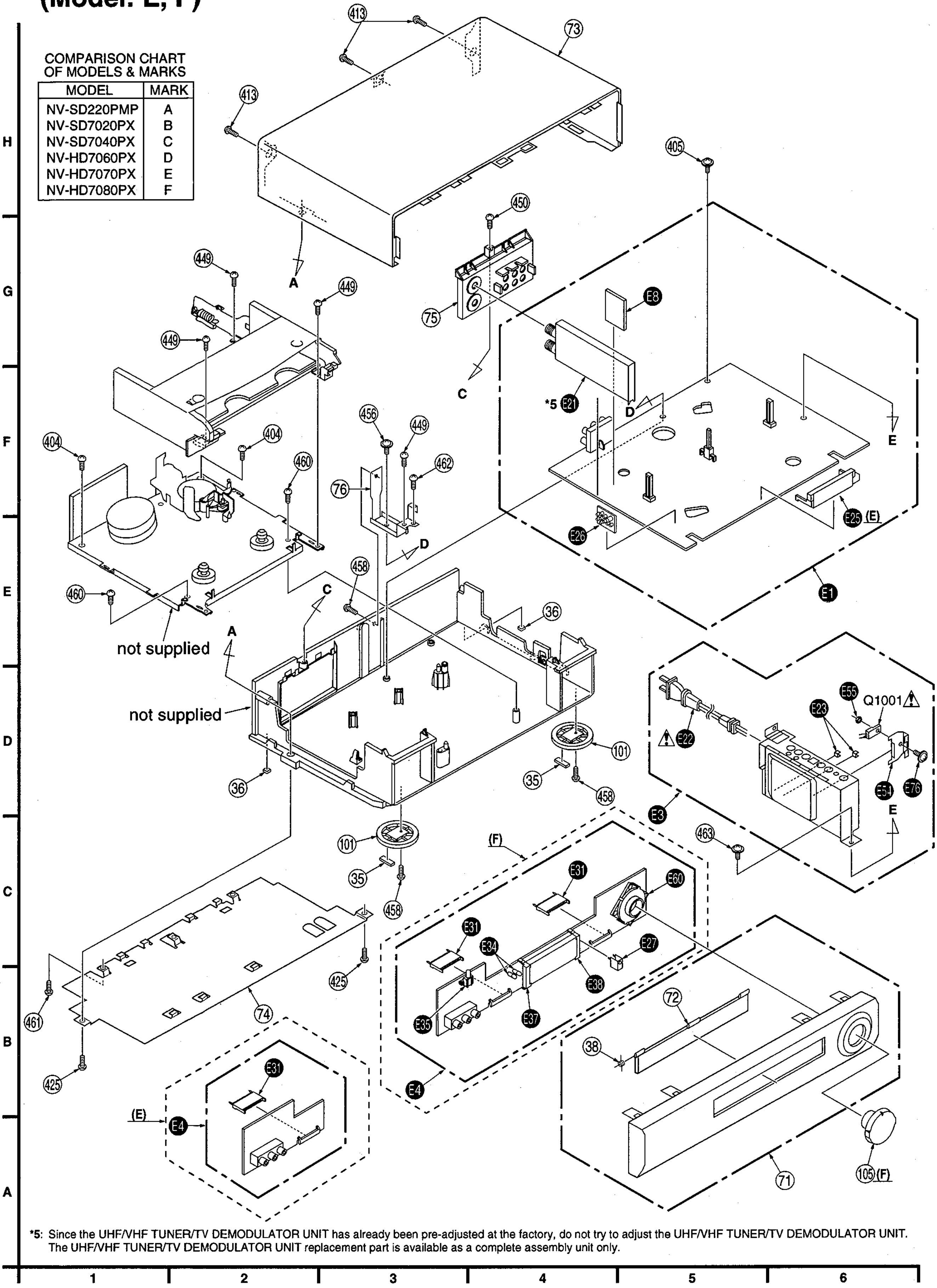
*5: Since the UHF/VHF TUNER/TV DEMODULATOR UNIT has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.

❹ CHASSIS FRAME AND CASING PARTS SECTION (Model: E, F)

IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

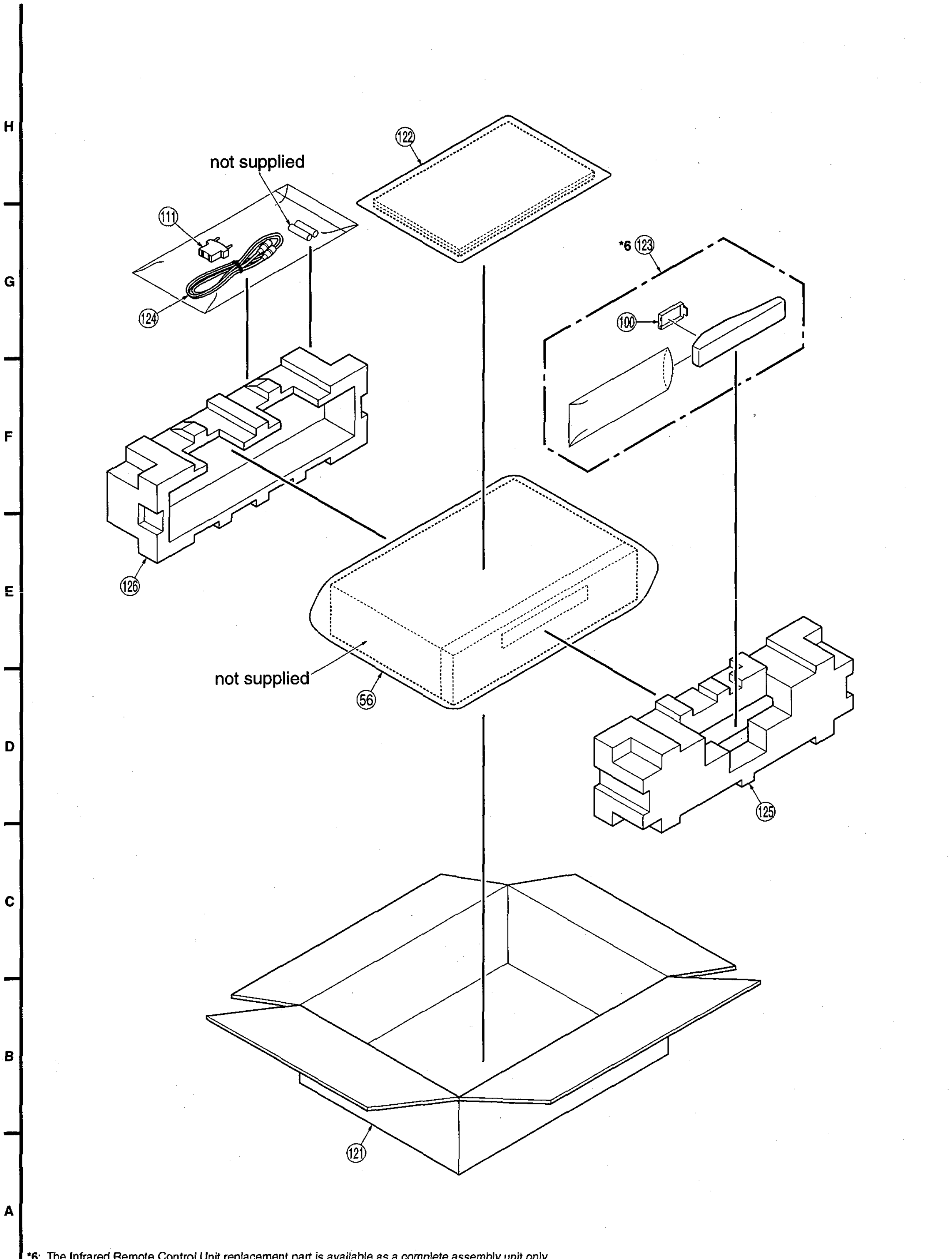
MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F



413
413
413
73
405
450
449
449
449
75
E8
C
A
*5 E21
D
E
456
449
462
404
404
460
460
76
E26
E25 (E)
E1
458
C
D
36
A
not supplied
not supplied
E55
Q1001⚠
E23
⚠ E22
101
36
35
458
E54
E76
E
E3
463
101
(F)
35
458
E31
E60
E31
E34
E27
E38
E35
E37
425
461
74
72
38
E4
E31
(E)
E4
425
71
105(F)
H
G
F
E
D
C
B
A
1
2
3
4
5
6

*5: Since the UHF/VHF TUNER/TV DEMODULATOR UNIT has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.

❺ PACKING PARTS AND ACCESSORIES SECTION



H
G
F
E
D
C
B
A
not supplied
⑪
⑫
⑬
⑯
*6 ⑫
(100)
(126)
(122)
(123)
(124)
(125)
(121)
(111)
not supplied
(56)
1
2
3
4
5
6

*6: The Infrared Remote Control Unit replacement part is *available as a complete assembly unit only.*
Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.

REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

1. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.
2. **IMPORTANT SAFETY NOTICE**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.
3. SPECIAL NOTE
   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.
4. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
5. Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.
6. The parts which "AKEI" is indicated in Remarks column will be supplied from AKEI factory.

Mechanical Replacement Notes

1. Section No. of parts shown in Exploded Views are indicated in the Remarks column.
2. Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as Capstan Rotor Kit (Ref No. 51) only.
3. Capstan Stator Unit, Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as a Capstan Stator Kit (Ref No. 52) only. However, IC2501 (AN3845SC) is available separately as a replacement part. When installing the IC2501 or Capstan Stator unit, be sure to apply Silicon Grease (VFK1301). Refer to "Capstan Stator Unit" of "DISASSEMBLY/ASSEMBLY PROCEDURES OF MECHANISM" section.
4. Since the UHF/VHF TUNER/TV DEMODULATOR UNIT (Ref No. E21) has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.
5. The Infrared Remote Control Unit (Ref No. 123) replacement part is available as a complete assembly unit only. Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.
6. Cut Washers (Ref No. 416 and 417) are not reusable.
   If removed, install a new one.
7. Main Cam Push Nut (Ref No. 414) is not reusable.
   If removed, install a new one.
8. Upper Cylinder Unit (Ref No. 13)
   replacement note for model NV-HD7080PX:
   Do not replace Upper Cylinder Units using Metal Heads with units using any other head materials.
   Otherwise, S/N Ratio will become noticeably worse.

Electrical Replacement Notes

1. Item numbers with capital letter E (Example: E1, E2,...) in the Ref. No. column are shown in the exploded views. The E item numbers are also printed on the same page at the top of the column.
2. The parts with "■" mark are supplied individually or as a unit. The parts with "▲" mark are supplied individually or as a unit, and are included in "■" parts listed directly above in the parts list.
3. Unless otherwise specified;
   All resistors are in ohms, 1/4W, +/-5%, carbon,
   K = 1,000 ohm, M = 1,000 kohm.
   All capacitors are in microfarads, P = micromicrofarad, +/-10%.
   All coils are in microhenries, M = 1,000 microhenry, +/-10%.
4. Abbreviation
   RTL: Retention Time Limited
   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.
   NR: Non Repairable Board Ass'y
   MGF CHIP: Metal Glaze Film Chip
   C CHIP: Ceramic Chip
   COMPLX CMP: Complex Component
   W FLMPRF: Wirewound Flameproof
   C.B.A.: Circuit Board Assembly
   P.C.B.: Printed Circuit Board
   E.S.D.: Electrostatically Sensitive Devices
5. SERVICE OF CHIP PARTS
   When servicing chip parts, please use a soldering iron of less than 30 watts. Refer to "IC, TRANSISTOR AND CHIP PART INFORMATION" page.
6. The parts with "●" are 0 ohm resistor. When replacing, a wire can be substituted for a 0 ohm resistor.
7. IC6301, IC6401 replacement note:
   The manufacturing part number is TMP47C216FF917, TMP47C215NF831 or UPD17217GT-538. However, to order the part, use service order part number T47C216FF917, T47C215NF831 or D17217GT-538.

COMPARISON CHART OF MODELS & MARKS

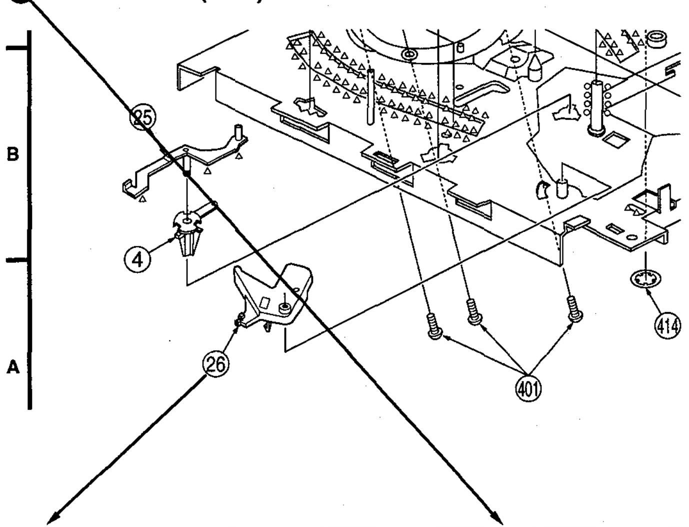
MODEL	MARK
NV-SD220PMP	A
NV-SD7020PX	B
NV-SD7040PX	C
NV-HD7060PX	D
NV-HD7070PX	E
NV-HD7080PX	F

MECHANICAL REPLACEMENT PARTS LIST

<The complete Exploded Views are shown in this manual.>

EXPLODED VIEWS

❶ MECHANISM (TOP) SECTION



Ref. No.	Part No.	Part Name	Remarks
		MECHANISM PARTS ON CHASSIS	
			(Section No.)
1	VBSS0032	FULL ERASE HEAD	1
2	VXKS0851	MOTOR BLOCK ASS'Y	1
3	VDBS0349	TENSION ARM BOSS	1
4	VDBS0351	S BRAKE ARM BOSS	1
5	VMDS0971	OPENER PIECE	1
6	VDGS0428	WORM WHEEL GEAR	1
7	VDGS0429	INTERMEDIATE GEAR	1
8	VDGS0430	MAIN CAM GEAR	1
9	VDRS0054	S REEL TABLE	1
10	VDRS0055	T REEL TABLE	1
11		CYLINDER UNIT	
	VEGS0395	(A,B)	1
	VEGS0397	(C)	1
	VEGS0399	(D,E)	1
	VEGS0400	(F)	1
12	VEHS0558	AUDIO CONTROL HEAD UNIT	1
13		UPPER CYLINDER UNIT	
	VEHS0553	(A,B)	1
	VEHS0554	(C)	1
	VEHS0555	(D,E)	1
	VEHS0556	(F)	1
14	VJSS0882	CONNECTOR 8P	1
15	VJWS6JB100LL	COMMU CABLE W/OUT PLUG	1
16	VXDS0198	LOADING POST BASE-S UNIT	1
17	VXDS0195	LOADING POST BASE-T UNIT	1
18	VXLS1058	PINCH ARM UNIT	1
19	VMLS0978	MAIN LEVER DRIVE ARM	1
20	VXLS1063	P5 ARM UNIT	1
21	VMLS0976	DRIVE RACK ARM	1
22	VMLS0972	CHANGING LEVER A	1
23	VMLS0977	MAIN LEVER	1
24	VXLS1072	LOADING RACK UNIT	1
25	VXLS1061	S BRAKE ARM UNIT	1
26	VMLS0982	S SPRING ARM	1
27	VXLS1062	T BRAKE UNIT	1
28	VMBS1150	T BRAKE SPRING	1
29	VXLS1074	TENSION ARM UNIT	1
30	VMBS1164	TENSION SPRING	1
32		CLEANER ARM UNIT	
	VXLS1073	(E,F)	1
33		CLEANER ROLLER	
	VDPS0269	(E,F)	1
35	VKAS0047	RUBBER FOOT	4
36	VKAS0060	RUBBER FOOT	4
38	VMBS1161	CASSETTE DOOR SPRING	4
41	VXPS0379	CENTER CLUTCH UNIT	2
42	VMBS1151	CHANGING GEAR SPRING	2
43	VDGS0425	CHANGING GEAR	2
44	VXLS1053	IDLER ARM UNIT	2
45	VMDS0985	PCB HOLDER	2
46	VMDS0982	MAIN LEVER GUIDE	2
47	VMLS0973	CHANGING LEVER B	2
49	VXLS1054	S LOADING ARM UNIT	2
50	VXLS1056	T LOADING ARM UNIT	2
51	VXPS0382K	CAPSTAN ROTOR KIT	2
52	VEMS0316K	CAPSTAN STATOR KIT	2
53	VBKS0040	FG HEAD	2
54	VDVS0087	CAPSTAN BELT SQUARE,ELASTOMER	2
		2MM	
55	VMAS2135	SUB ROTOR	2
56		SHEET,POLYETHYLENE	
	VPFS0095	(A,B,C,D)	5
	VPFS0085	(E,F)	5
57	VXBS0061	GROUNDING PLATE UNIT	2
58	VXLS1070	SS BRAKE ARM UNIT	2
59	VMBS1155	SS BRAKE SPRING	2
60	VMFS0311	CUSHION	3
61	VXYS1197	CASSETTE UP ASS'Y	3
62	VMAS2131	TOP PLATE	3
63	VMBS1159	GROUNDING SPRING	3
64	VMDS0976	SIDE PLATE L	3
65	VMDS0974	SIDE PLATE R	3
66	VMDS0979	SENSOR COVER	3
67	VMLS0987	OPENER LEVER	3
68	VXLS1064	DRIVE RACK UNIT	3
69	VXAS4404	HOLDER UNIT	3
70	VXLS1065	WIPER ARM UNIT	3
71		FRONT PANEL ASS'Y	
	VYPS6824	(A)	4
	VYPS6859	(B)	4
	VYPS6860	(C)	4
	VYPS6861	(D)	4
	VYPS6871	(E)	4
	VYPS6866	(F)	4
72		CASSETTE DOOR-LID UNIT	
	VYPS6737	(A,B,C,D)	4
	VYPS6865	(E,F)	4
73		TOP COVER	
	VKMS2420	(A,B,C,D)	4
	VKMS2389	(E,F)	4
74		BOTTOM PANEL	
	VKUS0275	(A,B,C)	4
	VKUS0276	(D)	4
	VKUS0274	(E,F)	4
75		REAR PANEL	
	VGPS4102	(A,B,C)	4
	VGPS4103	(D,E,F)	4
76	VMAS2136	CHASSIS ANGLE	4
100		BATTERY COVER	
	VKFS2221	(A,B,C,D,E)	5
	VKFS2222	(F)	5
101		INSULATER	
	VKAS0059	(E,F)	4
105		SHUTTLE DIAL	
	VGTS0711	(F)	4
111	VJSS0070	PLUG ADAPTOR	5
121		PACKING CASE,PAPER	
	VPGS3866	(A)	5
	VPGS4274	(B)	5
	VPGS4275	(C)	5
	VPGS4276	(D)	5
	VPGS4280	(E)	5
	VPGS4281	(F)	5
122		FAN BAG	
	VQFS3382	(A)	5
	VQFS3394	(B,C,D)	5
	VQFS3395	(E)	5
	VQFS3396	(F)	5
123		INFRARED REMOTE CONTROL UNIT	
	VSQS1488	(A,B,C)	5
	VSQS1480	(D,E)	5
	VSQS1497	(F)	5
124	VJAS0196	VHF CONNECTING CABLE	5

Ref. No.	Part No.	Part Name	Remarks
125		FRONT CUSHION, STYROFOAM	
	VPNS0579	(A, B, C, D)	5
	VPNS0584	(E, F)	5
126		REAR CUSHION, STYROFOAM	
	VPNS0580	(A, B, C, D)	5
	VPNS0585	(E, F)	5
		SCREWS AND WASHERS	
401	VHDS0475	SCREW, STEEL	1
404	VHDS0472	SCREW, STEEL	4
405	VHDS0496	SCREW W/WASHER, STEEL	4
407	XYN26+C5	SCREW W/WASHER, STEEL	2
408	XYN2+J5FZ	SCREW W/WASHER, STEEL	2
410	VHDS0498	SCREW W/WASHER, STEEL	1
413	VHDS0293	SCREW, STEEL	4
414	VHNS0070	MAIN CAM PUSH NUT, STEEL	1
415	VMXS0925	REEL WASHER, PBT	1
416	VMXS0922	CUT WASHER, NYLON	2
417	VMXS0924	CUT WASHER, NYLON	1
424	XYC26+CF6J	SCREW W/WASHER, STEEL	1
425	XTB3+12A	TAPPING SCREW, STEEL	4
429	VHDS0491	SCREW W/WASHER, STEEL	1
430	XTV26+6FFZJ	TAPPING SCREW, STEEL	2
431	XTV26+6FJ	TAPPING SCREW, STEEL	2
435	XSN26+4	SCREW, STEEL	2
449	VHDS0493	TAPPING SCREW, STEEL	4
450	VHDS0309	SCREW, STEEL	4
456	VHDS0497	SCREW W/WASHER, STEEL	4
458	XTV3+8J	TAPPING SCREW, FE	4
460	XTN4+12A	TAPPING SCREW, STEEL	4
461	VHDS0460	SCREW, STEEL	4
462	XTN4+15AR	SCREW, STEEL	4
463		SCREW W/WASHER, STEEL	
	VHDS0455	(E, F)	4
		SERVICE FIXTURES AND TOOLS	
	VFMS0003H6	VHS ALIGNMENT TAPE	
	VFKS0009	REEL TABLE HEIGHT FIXTURE	
	VFKS0010	POST ADJUSTMENT PLATE	
	VFKS0081	GREASE	
	VFK0329	POST ADJUSTMENT DRIVER	
	VFK1301	SILICON GREASE	
	VFK27	HEAD CLEANING STICK	
	VFK0330	H-POSITION ADJUSTMENT DRIVER	
	VUZS0002	EXTENSION CABLE KIT	
	VUVS0001	MODE SELECT ASS'Y	
	VUVS0002	EXTENSION CABLE -1	
	VUVS0003	EXTENSION CABLE -2	
		(FOR Hi-Fi MODEL)	
	VUVS0004	EXTENSION CABLE -2	
		(FOR 4 HEAD MODEL)	
	VUVS0005	EXTENSION CABLE -2	
		(FOR 2 HEAD MODEL)	

ELECTRICAL REPLACEMENT PARTS LIST

(E1, E3, E4, E6, E7, E8)

Ref. No.	Part No.	Part Name	Remarks
		PRINTED CIRCUIT BOARD ASSEMBLY	
E1	VEPS6037AA	MAIN C.B.A.	■ E.S.D. RTL
	(A)		
E1	VEPS6037AB	MAIN C.B.A.	■ E.S.D. RTL
	(B)		
E1	VEPS6037GA	MAIN C.B.A.	■ E.S.D. RTL
	(C)		
E1	VEPS6037HA	MAIN C.B.A.	■ E.S.D. RTL
	(D)		
E1	VEPS6039HA	MAIN C.B.A.	■ E.S.D. RTL
	(E)		
E1	VEPS6038HA	MAIN C.B.A.	■ E.S.D. RTL
	(F)		
E8	VEPS4017A	SPATIALIZER C.B.A.	▲ RTL
	(E, F)		
E3	VEPS01041B1	POWER SUPPLY C.B.A.	■ RTL
E4	VEPS8025A	OPERATION C.B.A.	■ RTL
	(E)		
E4	VEPS8029A	OPERATION C.B.A.	■ E.S.D. RTL
	(F)		
E6	VEPS5012A	HEAD AMP C.B.A.	■ RTL
	(A, B)		
E6	VEPS5011A	HEAD AMP C.B.A.	■ RTL
	(C)		
E6	VEPS5010A	Hi-Fi AUDIO/VIDEO HEAD AMP	■ RTL
		C.B.A.	
	(D, E, F)		
E7	VEPS0A25A	JUNCTION C.B.A.	■ RTL
		MAIN C.B.A.	■
		(A,B,C,D)	
		INTEGRATED CIRCUITS	
IC3001	AN3475FBP	IC, LINEAR VIDEO/AUDIO PROCESS	
IC3101	MN3885S	IC, CCD 1H DELAY	E.S.D.
IC3301	LC74723M9629	IC, LOGIC CHARACTER GENERATOR	E.S.D.
IC4201	AN3962FB-V	IC, LINEAR Hi-Fi AUDIO PROCESS	
	(D)		
IC6001	MN675048A5A4	IC, 8BIT MICROPROCESSOR	E.S.D.
IC6002	CNA1801N	REEL SENSOR UNIT	
IC6003	CNA1801N	REEL SENSOR UNIT	
IC6004	MN12821-R	IC, LOGIC RESET	E.S.D.
IC6301	T47C216FF917	IC, 4BIT MICROCONTROLLER	E.S.D.
		INDICATOR PANEL	
		TRANSISTORS	
Q1051	2SD2159(T)		
	(A, B, C)		
	2SD2375(P, Q)		
	(D)		
Q1052	2SD601(R, S)	CHIP	
Q3001	2SB709(R, S)	CHIP	
Q4001	2SB709A(Q, R, S)	CHIP	
Q4002	2SD601A(R, S)	CHIP	
Q4003	2SD601A(R, S)	CHIP	
Q4101	2SD601(R, S)	CHIP	
Q4601	2SD601(R, S)	CHIP	
	(D)		
Q6002	2SB709(R, S)	CHIP	
Q6003	2SD601(R, S)	CHIP	
Q6005	2SB709(R, S)	CHIP	
Q6006	2SD601(R, S)	CHIP	
Q6007	UN211L	CHIP	
Q6008	2SD601(R, S)	CHIP	
Q6009	VEKS5522	PHOTO SENSOR UNIT	
Q6010	VEKS5522	PHOTO SENSOR UNIT	
		DIODES	
D1051	MA4100N	ZENER 10V	
D1052	MA165		
D1053	MA165		

Ref. No.	Part No.	Part Name	Remarks
D3004	MA4091-M	ZENER 9.1V	
D4201	MA165		
	(D)		
D6001	VEKS5521	SENSOR LED UNIT	
D6003	MA165		
D6004	MA165		
D6005	MA165		
D6201	MA165		
D6202	MA165		
D6203	MA165		
D6204	MA165		
D6324	MA4068-M	ZENER 6.8V	
D7002	MA4330	ZENER 33V	
		RESISTORS	
R1051	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1052	ERDS2TJ123	12K	
	(A,B,C)		
	ERDS2TJ153	15K	
	(D)		
R1053	ERDS2TJ153	15K	
	(D)		
R1055	ERD2FCVG121T	+-2% 120	⚠
	(A,B,C)		
	ERD2FCVG330T	+-2% 33	⚠
	(D)		
R3002	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3003	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3004	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3005	ERDS2TJ101	100	
R3021	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R3022	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R3023	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3027	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R3029	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3030	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3031	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3033	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3034	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3041	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3301	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3302	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3303	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYG223V	MGF CHIP +-2% 1/10W 22K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(A,B,C)		
R4010	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(A,B,C)		
	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
	(D)		
R4011	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
	(A,B,C)		
	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
	(D)		
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4013	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(A,B,C)		
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4017	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4018	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
	(A,B,C)		
R4019	VCYSARH102KB	CERAMIC 50V 1000P	
R4028	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4101	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R4102	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	

Ref. No.	Part No.	Part Name	Remarks
R4201	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(D)		
R4202	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(D)		
R4203	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
	(D)		
R4204	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
	(D)		
R4205	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
	(D)		
R4206	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
	(D)		
R4207	ERJ6GEYG153V	MGF CHIP +-2% 1/10W 15K	
	(D)		
R4208	ERJ6GEYG153V	MGF CHIP +-2% 1/10W 15K	
	(D)		
R4213	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(D)		
R4214	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(D)		
R4215	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(D)		
R4216	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(D)		
R4217	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(D)		
R4218	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(D)		
R4219	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
	(D)		
R4220	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(D)		
R4221	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(D)		
R4222	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(D)		
R4226	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(D)		
R4230	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(D)		
R4234	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(D)		
R4240	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(D)		
R4241	ERA6YEB153V	MGF CHIP +-0.1% 1/10W 15K	
	(D)		
R4243	ERDS2TJ152	1.5K	
	(D)		
R4244	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
	(D)		
R4245	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(D)		
R4246	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(D)		
R4247	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
	(D)		
R4248	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(D)		
R4249	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(D)		
R4601	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
	(D)		
R4602	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(A,B,C)		
	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(D)		
R4604	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
	(D)		
R4605	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
	(D)		
R4606	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
	(D)		
R4607	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(D)		
R4608	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(A,B,C)		
R4870	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6001	ERDS2TJ561	560	

Ref. No.	Part No.	Part Name	Remarks
R6002	ERDS2TJ561	560	
R6004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(D)		
R6005	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
	(D)		
R6006	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6012	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6014	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6015	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6019	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6020	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6021	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6022	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6023	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6024	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6025	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6026	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6029	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6030	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6033	ERDS2TJ681	680	
R6034	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6037	ERDS2TJ391	390	
R6038	ERDS2TJ560	56	
R6051	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6052	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6053	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6056	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6057	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6058	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6059	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6060	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6061	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6062	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
	(C,D)		
R6063	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(C,D)		
R6064	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(C,D)		
R6066	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6067	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6068	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6069	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6070	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6073	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6074	ERDS2TJ272	2.7K	
R6075	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6077	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6085	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6086	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6087	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6088	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6093	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(D)		
R6094	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6099	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6102	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6109	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6110	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6201	EVNCYAA03B15	VARIABLE 100K	
	(A,B,C)		
	EVMF6SA00B15	VARIABLE 100K	
	(D)		
R6202	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6203	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6204	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6205	ERJ6GEYJ243V	MGF CHIP 1/10W 24K	
R6206	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6207	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6208	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R6209	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
	(A,B,C)		
	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
	(D)		
R6210	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
	(C,D)		
R6211	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6212	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	

Ref. No.	Part No.	Part Name	Remarks
R6213	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6214	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R6215	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R6216	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6218	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
	(A,B,C)		
	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
	(D)		
R6219	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6221	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6222	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R6223	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6224	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6230	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6316	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6346	ERDS2TJ470	47	
R6350	ERDS2TJ820	82	
R6351	ERDS2TJ750	75	
	(A,B,C)		
	ERDS2TJ820	82	
	(D)		
R6352	ERDS2TJ750	75	
	(A,B,C)		
	ERDS2TJ101	100	
	(D)		
R6353	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6358	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6359	VLQSH02R101K	100	
R7001	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(A,B,C)		
R7002	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7003	ERDS2TJ102	1K	
R7004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7006	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7007	EVNCYAA03B24	VARIABLE 20K	
	(D)		
		CAPACITORS	
C1051	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C1052	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3001	ECA0JM471	ELECTROLYTIC 6.3V 470	
C3002	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3011	ECUV1H103KBN	C CHIP 50V 0.01	
C3014	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3015	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3017	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3018	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3019	ECUV1H560JCN	C CHIP +-5% 50V 56P	
C3021	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3022	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3023	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3024	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3025	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3026	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3027	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3028	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3029	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3030	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3031	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3032	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3033	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3034	ECEA1HKAR22	ELECTROLYTIC 50V 0.22	
C3035	ECUV1H560JCN	C CHIP +-5% 50V 56P	
C3036	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3037	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C3039	ECUV1H822KBN	C CHIP 50V 8200P	
C3043	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3044	ECUV1C474ZFN	C CHIP +80%-20% 16V 0.47	
C3045	ECUV1C474ZFN	C CHIP +80%-20% 16V 0.47	
C3047	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3048	ECUV1H390JCN	C CHIP +-5% 50V 39P	
C3049	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3050	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3051	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3052	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3053	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C3054	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	

Ref. No.	Part No.	Part Name	Remarks
C3055	ECUV1H392KBN	C CHIP 50V 3900P	
C3056	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3057	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3058	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3059	ECUV1H020CCN	C CHIP +-0.25P 50V 2P	
C3062	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3101	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3102	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3104	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3105	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3106	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3108	ECUV1H102KBN	C CHIP 50V 1000P	
C3109	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3301	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3302	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3304	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3305	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3306	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3307	ECUV1H180GCN	C CHIP +-2% 50V 18P	
C3308	ECUV1H220JCN	C CHIP +-5% 50V 22P	
C3310	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3311	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3312	ECUV1H150JCN	C CHIP +-5% 50V 15P	
C4001	ECUV1E104KBN	C CHIP 25V 0.1	
C4002	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4003	ECUV1H392KBN	C CHIP 50V 3900P	
C4004	ECUV1H103KBN	C CHIP 50V 0.01	
C4005	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4006	ECUV1H102KBN	C CHIP 50V 1000P	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4010	ECUV1E273KBN	C CHIP 25V 0.027	
C4011	ECUV1H822KBN	C CHIP 50V 8200P	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4015	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C4017	ECUV1H103KBN	C CHIP 50V 0.01	
	(D)		
C4018	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(A,B,C)		
C4101	ECUV1H221JCN	C CHIP +-5% 50V 220P	
C4102	ECHS1562JZ3	POLYESTER +-5% 100V 5600P	
C4103	ECUV1H103KBN	C CHIP 50V 0.01	
C4104	ECUV1H103KBN	C CHIP 50V 0.01	
C4106	ECEA1CKA220	ELECTROLYTIC 16V 22	
C4201	ECUV1E473KBN	C CHIP 25V 0.047	
	(D)		
C4202	ECUV1E473KBN	C CHIP 25V 0.047	
	(D)		
C4203	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
	(D)		
C4204	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
	(D)		
C4205	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
	(D)		
C4206	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
	(D)		
C4207	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
	(D)		
C4208	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
	(D)		
C4209	ECUV1H153KBN	C CHIP 50V 0.015	
	(D)		
C4209	ECUV1H153KBN	C CHIP 50V 0.015	
	(D)		
C4210	ECUV1H153KBN	C CHIP 50V 0.015	
	(D)		
C4211	ECUV1H103KBN	C CHIP 50V 0.01	
	(D)		
C4212	ECUV1H103KBN	C CHIP 50V 0.01	
	(D)		
C4213	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(D)		
C4214	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(D)		
C4217	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(D)		

Ref. No.	Part No.	Part Name	Remarks
C4218	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(D)		
C4219	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(D)		
C4220	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(D)		
C4221	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(D)		
C4222	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(D)		
C4235	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
	(D)		
C4236	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
	(D)		
C4237	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(D)		
C4238	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(D)		
C4239	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(D)		
C4240	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
	(D)		
C4242	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
	(D)		
C4244	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(D)		
C4601	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(D)		
C4603	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4606	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(D)		
C6002	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6004	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6005	ECUV1H150GCN	C CHIP +-2% 50V 15P	
C6006	ECUV1H120JCN	C CHIP +-5% 50V 12P	
C6007	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6008	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6009	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6010	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6016	ECEA0JU471	ELECTROLYTIC 6.3V 470	
C6019	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6021	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C6201	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6202	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
C6203	ECUV1H103KBN	C CHIP 50V 0.01	
C6204	ECUV1H103KBN	C CHIP 50V 0.01	
C6205	ECUV1H102KBN	C CHIP 50V 1000P	
C6206	ECUV1H103KBN	C CHIP 50V 0.01	
C6207	ECQB1H393KF	POLYESTER 50V 0.039	
C6208	ECEA1HKA010	ELECTROLYTIC 50V 1	
C6209	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6211	ECUV1H272KBN	C CHIP 50V 2700P	
C6212	ECUV1E104KBN	C CHIP 25V 0.1	
C6213	ECUV1H151KN	C CHIP 50V 150P	
C6214	ECUV1H102KBN	C CHIP 50V 1000P	
C6217	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6218	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6221	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C6222	ECUV1H272KBN	C CHIP 50V 2700P	
C6223	ECUV1E333KBN	C CHIP 25V 0.033	
	(A)		
	ECUV1H103KBN	C CHIP 50V 0.01	
	(B,C,D)		
C6224	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6228	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6305	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6306	ECA0JM471	ELECTROLYTIC 6.3V 470	
C6307	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6308	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7001	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C7003	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7005	ECUV1E183KBN	C CHIP 25V 0.018	
	(A,B,C)		
C7006	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7008	ECEA1CKA101	ELECTROLYTIC 16V 100	
C7010	ECUV1H102KBN	C CHIP 50V 1000P	
C7015	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C7018	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	

(E21, E25, E26)

Ref. No.	Part No.	Part Name	Remarks
C7019	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7020	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7022	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C7023	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C7024	ECUV1H103KBN	C CHIP 50V 0.01	
		COILS	
L3014	VLQSH02R470K	47	
L3016	ELESN330KA	33	
L3018	ELESN470KA	47	
L3101	ELESN101KA	100	
L3302	VLQSH02R180J	+-5% 18	
L4001	ELELN153KA	15M	
L4101	ELESN471KA	470	
L7001	ELESN120KA	12	
L7002	ELESN101KA	100	
L7004	VLPS0092	CHIP	
		CRYSTAL OSCILLATOR	
X3010	VSXS0195		
X6001	VSXS0191		
X6301	EF0EC8004T4		
		PIN HEADERS	
P1051	VJPS0645	CONNECTOR 9P	
P3001	VJPS0882	CONNECTOR 12P	
	(A,B)		
	VJPS0884	CONNECTOR 15P	
	(C)		
	VJPS0885	CONNECTOR 20P	
	(D)		
P4001	VJSS0888	FE CONNECTOR 2P	
P6002	VJPS0881	CONNECTOR 8P	
P6201	VJPS0883	CONNECTOR 14P	
		SWITCHES	
SW6001	VSHS0058	LEAF SWITCH-SAFETY TAB	
SW6002	VSSS0159	MODE SELECT SWITCH	
SW6303	EVQ21309K	PUSH SWITCH	
SW6305	EVQ21309K	PUSH SWITCH	
SW6306	EVQ21309K	PUSH SWITCH	
SW6307	EVQ21309K	PUSH SWITCH	
SW6309	EVQ21309K	PUSH SWITCH	
SW6310	EVQ21309K	PUSH SWITCH	
SW6311	EVQ21309K	PUSH SWITCH	
SW6312	EVQ21309K	PUSH SWITCH	
SW6313	EVQ21309K	PUSH SWITCH	
SW7001	VSSS0152	SELECT SWITCH	
		FUSE & PROTECTOR	
PR1054	UNH000600A	IC PROTECTOR 1.5A	⚠
	OR ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
		TRANSFORMER	
T4101	EIQ7QF018Q		
		MISCELLANEOUS	
JK3001	VJHS0720	A/V JACK SOCKET	
	(A,B,C)		
	VJHS0727	A/V JACK SOCKET	
	(D)		
E21	VEQS0602A	TUNER,UHF/VHF NR	
	(A,B,C)		
E21	VEQS0603	TUNER,UHF/VHF NR	
	(D)		
E25	VEKS5520	DISPLAY TUBE/INFRARED RECEIVER	
		UNIT	
E26	VCRS0213	IC, HYBRID MTS/SAP AUDIO	
		PROCESS	
	(D)		

Ref. No.	Part No.	Part Name	Remarks
		MAIN C.B.A.	■
		(E)	
		INTEGRATED CIRCUITS	
IC3001	AN3475FBP	IC, LINEAR VIDEO/AUDIO PROCESS	
IC3101	MN3885S	IC, CCD 1H DELAY	E.S.D.
IC3301	LC74725M9630	IC, LOGIC CHARACTER GENERATOR	E.S.D.
IC4201	AN3962FB-V	IC, LINEAR Hi-Fi AUDIO PROCESS	
IC6001	MN675048A5A4	IC, 8BIT MICROPROCESSOR	E.S.D.
IC6002	CNA1801N	REEL SENSOR UNIT	
IC6003	CNA1801N	REEL SENSOR UNIT	
IC6004	MN12821-R	IC, LOGIC RESET	E.S.D.
IC6301	T47C216FF917	IC, 4BIT MICROCONTROLLER	E.S.D.
		INDICATOR PANEL	
		TRANSISTORS	
Q1051	2SD2375(P,Q)		
Q1052	2SD601(R,S)	CHIP	
Q3001	2SB709(R,S)	CHIP	
Q4001	2SB709A(Q,R,S)	CHIP	
Q4002	2SD601A(R,S)	CHIP	
Q4003	2SD601A(R,S)	CHIP	
Q4101	2SD601(R,S)	CHIP	
Q4601	2SD601(R,S)	CHIP	
Q6002	2SB709(R,S)	CHIP	
Q6003	2SD601(R,S)	CHIP	
Q6005	2SB709(R,S)	CHIP	
Q6006	2SD601(R,S)	CHIP	
Q6007	UN211L	CHIP	
Q6008	2SD601(R,S)	CHIP	
Q6009	VEKS5522	PHOTO SENSOR UNIT	
Q6010	VEKS5522	PHOTO SENSOR UNIT	
		DIODES	
D1051	MA4100N	ZENER 10V	
D1052	MA165		
D1053	MA165		
D3004	MA4091-M	ZENER 9.1V	
D4201	MA165		
D6001	VEKS5521	SENSOR LED UNIT	
D6003	MA165		
D6004	MA165		
D6005	MA165		
D6201	MA165		
D6202	MA165		
D6203	MA165		
D6204	MA165		
D6324	MA4056-M	ZENER 5.6V	
D7002	MA4330	ZENER 33V	
		RESISTORS	
R1051	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1052	ERDS2TJ153	15K	
R1053	ERDS2TJ153	15K	
R1055	ERD2FCVG330T	+-2% 33	⚠
R3002	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3003	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3004	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3005	ERDS2TJ101	100	
R3021	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R3022	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R3023	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3027	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R3029	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3030	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3031	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3033	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3034	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3041	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3301	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R3302	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	

Ref. No.	Part No.	Part Name	Remarks
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYG223V	MGF CHIP +-2% 1/10W 22K	
R4010	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R4011	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4017	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4019	VCYSARH102KB	CERAMIC 50V 1000P	
R4028	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4101	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R4102	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4201	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4202	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4203	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
R4204	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
R4205	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4206	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4207	ERJ6GEYG153V	MGF CHIP +-2% 1/10W 15K	
R4208	ERJ6GEYG153V	MGF CHIP +-2% 1/10W 15K	
R4209	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4210	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4211	ERJ6GEYG153V	MGF CHIP +-2% 1/10W 15K	
R4212	ERJ6GEYG153V	MGF CHIP +-2% 1/10W 15K	
R4213	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4214	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4215	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4216	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4217	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4218	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4219	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R4220	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4221	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4222	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4226	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4230	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4234	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4240	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4241	ERA6YEB153V	MGF CHIP +-0.1% 1/10W 15K	
R4243	ERDS2TJ152	1.5K	
R4244	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R4245	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4246	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4247	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R4248	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4249	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4601	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R4602	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4604	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4605	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R4606	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4607	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4870	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6001	ERDS2TJ561	560	
R6002	ERDS2TJ561	560	
R6004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6005	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6006	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6012	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6014	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6015	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6019	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6020	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6021	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6022	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6023	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6024	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6025	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6026	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6029	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6030	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6033	ERDS2TJ681	680	
R6034	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6037	ERDS2TJ391	390	
R6038	ERDS2TJ560	56	
R6051	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6052	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6053	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6056	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6057	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6058	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6059	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6060	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6061	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6062	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R6063	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6064	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6066	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6067	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6068	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6069	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6070	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6073	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6074	ERDS2TJ272	2.7K	
R6075	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6077	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6085	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6086	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6087	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6088	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6093	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6094	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6098	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6099	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6102	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6109	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6110	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6201	EVMF6SA00B15	VARIABLE 100K	
R6202	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6203	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6204	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6205	ERJ6GEYJ243V	MGF CHIP 1/10W 24K	
R6206	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6207	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6208	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R6209	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6210	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6211	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6212	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6213	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6214	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R6215	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R6216	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6218	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R6219	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6221	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6222	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R6223	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6224	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6230	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6316	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6346	ERDS2TJ470	47	
R6350	ERDS2TJ330	33	
R6351	ERDS2TJ470	47	
R6353	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6358	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6359	VLQSH02R101K	100	
R7002	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7003	ERDS2TJ102	1K	
R7004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7006	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7007	EVNCYAA03B24	VARIABLE 20K	

Ref. No.	Part No.	Part Name	Remarks
		CAPACITORS	
C1051	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C1052	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3001	ECA0JM471	ELECTROLYTIC 6.3V 470	
C3002	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3011	ECUV1H103KBN	C CHIP 50V 0.01	
C3014	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3015	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3017	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3018	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3019	ECUV1H560JCN	C CHIP +-5% 50V 56P	
C3021	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3022	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3023	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3024	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3025	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3026	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3027	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3028	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3029	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3030	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3031	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3032	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3033	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3034	ECEA1HKAR22	ELECTROLYTIC 50V 0.22	
C3035	ECUV1H560JCN	C CHIP +-5% 50V 56P	
C3036	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3037	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C3038	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3039	ECUV1H822KBN	C CHIP 50V 8200P	
C3043	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3044	ECUV1C474ZFN	C CHIP +80%-20% 16V 0.47	
C3045	ECUV1C474ZFN	C CHIP +80%-20% 16V 0.47	
C3047	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3048	ECUV1H390JCN	C CHIP +-5% 50V 39P	
C3049	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3050	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3051	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3052	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3053	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C3054	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3055	ECUV1H392KBN	C CHIP 50V 3900P	
C3056	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3057	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3058	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3059	ECUV1H020CCN	C CHIP +-0.25P 50V 2P	
C3062	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3101	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3102	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3104	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3105	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3106	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3108	ECUV1H102KBN	C CHIP 50V 1000P	
C3109	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3301	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3302	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3304	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3306	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C3307	ECUV1H180GCN	C CHIP +-2% 50V 18P	
C3308	ECUV1H220JCN	C CHIP +-5% 50V 22P	
C3310	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3311	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3312	ECUV1H150JCN	C CHIP +-5% 50V 15P	
C4001	ECUV1E104KBN	C CHIP 25V 0.1	
C4002	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4003	ECUV1H392KBN	C CHIP 50V 3900P	
C4004	ECUV1H103KBN	C CHIP 50V 0.01	
C4005	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4006	ECUV1H102KBN	C CHIP 50V 1000P	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4010	ECUV1E273KBN	C CHIP 25V 0.027	
C4011	ECUV1H822KBN	C CHIP 50V 8200P	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4015	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	

Ref. No.	Part No.	Part Name	Remarks
C4017	ECUV1H103KBN	C CHIP 50V 0.01	
C4101	ECUV1H221JCN	C CHIP +-5% 50V 220P	
C4102	ECHS1562JZ3	POLYESTER +-5% 100V 5600P	
C4103	ECUV1H103KBN	C CHIP 50V 0.01	
C4104	ECUV1H103KBN	C CHIP 50V 0.01	
C4106	ECEA1CKA220	ELECTROLYTIC 16V 22	
C4201	ECUV1E473KBN	C CHIP 25V 0.047	
C4202	ECUV1E473KBN	C CHIP 25V 0.047	
C4203	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
C4204	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
C4205	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C4206	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C4207	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C4208	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C4209	ECUV1H153KBN	C CHIP 50V 0.015	
C4210	ECUV1H153KBN	C CHIP 50V 0.015	
C4211	ECUV1H103KBN	C CHIP 50V 0.01	
C4212	ECUV1H103KBN	C CHIP 50V 0.01	
C4213	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4214	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4215	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4216	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4217	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4218	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4219	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4220	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4221	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4222	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4235	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C4236	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4237	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4238	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4239	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4240	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C4242	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4244	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
C4601	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4603	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4606	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6002	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6004	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6005	ECUV1H150GCN	C CHIP +-2% 50V 15P	
C6006	ECUV1H120JCN	C CHIP +-5% 50V 12P	
C6007	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6008	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6009	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6010	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6016	ECEA0JU471	ELECTROLYTIC 6.3V 470	
C6019	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6021	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C6201	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6202	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
C6203	ECUV1H103KBN	C CHIP 50V 0.01	
C6204	ECUV1H103KBN	C CHIP 50V 0.01	
C6205	ECUV1H102KBN	C CHIP 50V 1000P	
C6206	ECUV1H103KBN	C CHIP 50V 0.01	
C6207	ECQB1H393KF	POLYESTER 50V 0.039	
C6208	ECEA1HKA010	ELECTROLYTIC 50V 1	
C6209	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6211	ECUV1H272KBN	C CHIP 50V 2700P	
C6212	ECUV1E104KBN	C CHIP 25V 0.1	
C6213	ECUV1H151KN	C CHIP 50V 150P	
C6214	ECUV1H102KBN	C CHIP 50V 1000P	
C6217	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6218	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6221	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C6222	ECUV1H272KBN	C CHIP 50V 2700P	
C6223	ECUV1H103KBN	C CHIP 50V 0.01	
C6224	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6228	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6305	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6306	ECA0JM471	ELECTROLYTIC 6.3V 470	
C6307	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6308	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7001	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C7003	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7006	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7008	ECEA1CKA101	ELECTROLYTIC 16V 100	

(E8, E21, E25, E26)

Ref. No.	Part No.	Part Name	Remarks
C7010	ECUV1H102KBN	C CHIP 50V 1000P	
C7015	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C7018	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7019	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7020	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7022	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C7023	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C7024	ECUV1H103KBN	C CHIP 50V 0.01	
		COILS	
L3014	VLQSH02R470K	47	
L3016	ELESN330KA	33	
L3018	ELESN470KA	47	
L3101	ELESN101KA	100	
L3302	VLQSH02R180J	+-5% 18	
L4001	ELELN153KA	15M	
L4101	ELESN471KA	470	
L7001	ELESN120KA	12	
L7002	ELESN101KA	100	
L7004	VLPS0092	CHIP	
		CRYSTAL OSCILLATOR	
X3010	VSXS0195		
X6001	VSXS0191		
X6301	EF0EC8004T4		
		PIN HEADERS	
P1051	VJPS0645	CONNECTOR 9P	
P3001	VJPS0885	CONNECTOR 20P	
P4001	VJSS0888	FE CONNECTOR 2P	
P6001	VJPS0712	CONNECTOR 19P	
P6002	VJPS0881	CONNECTOR 8P	
P6201	VJPS0883	CONNECTOR 14P	
		SWITCHES	
SW6001	VSHS0058	LEAF SWITCH-SAFETY TAB	
SW6002	VSSS0159	MODE SELECT SWITCH	
SW6309	EVQ21309K	PUSH SWITCH	
SW6310	EVQ21309K	PUSH SWITCH	
SW6311	EVQ21309K	PUSH SWITCH	
SW6312	EVQ21309K	PUSH SWITCH	
SW6313	EVQ21309K	PUSH SWITCH	
SW7001	VSSS0152	SELECT SWITCH	
		FUSE & PROTECTOR	
PR1054	ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
		TRANSFORMER	
T4101	EIQ7QF018Q		
		PRINTED CIRCUIT BOARD ASSEMBLY	
E8	VEPS4017A	SPATIALIZER C.B.A.	▲
		MISCELLANEOUS	
JK3001	VJHS0727	A/V JACK SOCKET	
E21	VEQS0603	TUNER, UHF/VHF NR	
E25	VEKS5525	DISPLAY TUBE/INFRARED RECEIVER	
		UNIT	
E26	VCRS0213	IC, HYBRID MTS/SAP AUDIO	
		PROCESS	

Ref. No.	Part No.	Part Name	Remarks
		MAIN C.B.A.	■
		(F)	
		INTEGRATED CIRCUITS	
IC3001	AN3475FBP	IC, LINEAR VIDEO/AUDIO PROCESS	
IC3101	MN3885S	IC, CCD 1H DELAY	E.S.D.
IC3201	MN3890S	IC, CCD 1H DELAY	E.S.D.
IC3301	LC74725M9630	IC, LOGIC CHARACTER GENERATOR	E.S.D.
IC4201	AN3962FB-V	IC, LINEAR Hi-Fi AUDIO PROCESS	
IC4351	M62302FP	IC, LINEAR LEVEL METER CONTROL	
IC6001	MN675058A5X	IC, 8BIT MICROPROCESSOR	E.S.D.
IC6002	CNA1801N	REEL SENSOR UNIT	
IC6003	CNA1801N	REEL SENSOR UNIT	
IC6004	MN12821-R	IC, LOGIC RESET	E.S.D.
		TRANSISTORS	
Q1051	2SD2375(P,Q)		
Q1052	2SD601(R,S)	CHIP	
Q3001	2SB709(R,S)	CHIP	
Q3201	IMZ1	COMPLX CMP SI NPN/PNP CHIP	
Q3202	2SB709(R,S)	CHIP	
Q4001	2SB709A(Q,R,S)	CHIP	
Q4002	2SD601A(R,S)	CHIP	
Q4003	2SD601A(R,S)	CHIP	
Q4101	2SD601(R,S)	CHIP	
Q4601	2SD601(R,S)	CHIP	
Q6002	2SB709(R,S)	CHIP	
Q6003	2SD601(R,S)	CHIP	
Q6005	2SB709(R,S)	CHIP	
Q6006	2SD601(R,S)	CHIP	
Q6007	UN211L	CHIP	
Q6008	2SD601(R,S)	CHIP	
Q6009	VEKS5522	PHOTO SENSOR UNIT	
Q6010	VEKS5522	PHOTO SENSOR UNIT	
		DIODES	
D1051	MA4100N	ZENER 10V	
D1052	MA165		
D1053	MA165		
D3004	MA4091-M	ZENER 9.1V	
D4201	MA165		
D6001	VEKS5521	SENSOR LED UNIT	
D6003	MA165		
D6004	MA165		
D6005	MA165		
D6201	MA165		
D6202	MA165		
D6203	MA165		
D6204	MA165		
D7002	MA4330	ZENER 33V	
		RESISTORS	
R1051	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1052	ERDS2TJ153	15K	
R1053	ERDS2TJ153	15K	
R1055	ERD2FCVG330T	+-2% 33	⚠
R3002	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3003	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3004	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3005	ERDS2TJ101	100	
R3021	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R3022	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R3023	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3027	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R3029	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3030	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3031	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3033	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3034	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3041	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3202	ERJ6GEYJ821V	MGF CHIP 1/10W 820	

Ref. No.	Part No.	Part Name	Remarks
R3204	EVMF6SA00B23	VARIABLE 2K	
R3205	EVNCYAA03B13	VARIABLE 1K	
R3206	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R3207	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3208	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3209	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R3210	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3211	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3212	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R3213	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R3214	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R3301	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R3302	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYG223V	MGF CHIP +-2% 1/10W 22K	
R4010	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R4011	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4017	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4019	VCYSARH102KB	CERAMIC 50V 1000P	
R4028	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4101	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R4102	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4201	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4202	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4203	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
R4204	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
R4205	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4206	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4207	ERJ6GEYG153V	MGF CHIP +-2% 1/10W 15K	
R4208	ERJ6GEYG153V	MGF CHIP +-2% 1/10W 15K	
R4209	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4210	ERJ6GEYG333V	MGF CHIP +-2% 1/10W 33K	
R4211	ERJ6GEYG153V	MGF CHIP +-2% 1/10W 15K	
R4212	ERJ6GEYG153V	MGF CHIP +-2% 1/10W 15K	
R4213	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4214	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4215	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4216	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4217	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4218	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4219	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R4220	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4221	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4222	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4226	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4230	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4234	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4240	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4241	ERA6YEB153V	MGF CHIP +-0.1% 1/10W 15K	
R4243	ERDS2TJ152	1.5K	
R4244	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R4245	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4246	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4247	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R4248	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4249	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4351	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4352	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4353	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4354	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4355	ERDS2TJ183	18K	
R4356	ERDS2TJ183	18K	
R4601	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R4602	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4604	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4605	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R4606	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4607	ERJ6GEYJ101V	MGF CHIP 1/10W 100	

Ref. No.	Part No.	Part Name	Remarks
R4870	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6001	ERDS2TJ561	560	
R6002	ERDS2TJ561	560	
R6004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6005	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6006	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6012	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6014	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6015	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6019	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6020	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6021	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6022	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6023	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6024	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6025	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6026	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6029	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6030	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6033	ERDS2TJ681	680	
R6034	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6037	ERDS2TJ391	390	
R6038	ERDS2TJ560	56	
R6051	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6052	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6053	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6056	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6057	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6058	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6059	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6060	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6061	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6062	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R6063	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6064	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6066	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6067	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6068	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6069	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6070	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6073	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6074	ERDS2TJ272	2.7K	
R6075	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6077	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6085	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6086	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6087	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6088	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6093	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6094	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6098	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6099	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6102	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6109	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6110	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6201	EVMF6SA00B15	VARIABLE 100K	
R6202	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6203	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6204	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6205	ERJ6GEYJ243V	MGF CHIP 1/10W 24K	
R6206	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6207	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6208	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R6209	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6210	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6211	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6212	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6213	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6214	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R6215	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R6216	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6218	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R6219	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6221	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6222	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R6223	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6224	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	

Ref. No.	Part No.	Part Name	Remarks
R6230	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6361	ERJ8GEYJ4R7V	MGF CHIP 1/8W 4.7	
R7002	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7003	ERDS2TJ102	1K	
R7004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7006	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7007	EVNCYAA03B24	VARIABLE 20K	
		CAPACITORS	
C1051	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C1052	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3001	ECA0JM471	ELECTROLYTIC 6.3V 470	
C3002	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3011	ECUV1H103KBN	C CHIP 50V 0.01	
C3014	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3015	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3017	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3018	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3019	ECUV1H560JCN	C CHIP +-5% 50V 56P	
C3021	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3022	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3023	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3024	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3025	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3026	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3027	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3028	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3029	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3030	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3031	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3032	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3033	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3034	ECEA1HKAR22	ELECTROLYTIC 50V 0.22	
C3035	ECUV1H560JCN	C CHIP +-5% 50V 56P	
C3036	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3037	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C3038	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3039	ECUV1H822KBN	C CHIP 50V 8200P	
C3043	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3044	ECUV1C474ZFN	C CHIP +80%-20% 16V 0.47	
C3045	ECUV1C474ZFN	C CHIP +80%-20% 16V 0.47	
C3047	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3048	ECUV1H390JCN	C CHIP +-5% 50V 39P	
C3049	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3050	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3051	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3052	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3053	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C3054	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3055	ECUV1H392KBN	C CHIP 50V 3900P	
C3056	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3057	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3058	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3059	ECUV1H020CCN	C CHIP +-0.25P 50V 2P	
C3062	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3101	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3102	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3104	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3105	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3106	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3108	ECUV1H102KBN	C CHIP 50V 1000P	
C3109	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3201	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3202	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3203	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3205	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3206	ECUV1H102KBN	C CHIP 50V 1000P	
C3207	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3208	ECUV1H472KBN	C CHIP 50V 4700P	
C3210	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3211	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3213	ECUV1H121JCN	C CHIP +-5% 50V 120P	
C3214	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3215	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3216	ECUV1H180JCN	C CHIP +-5% 50V 18P	
C3217	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C3218	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	

Ref. No.	Part No.	Part Name	Remarks
C3301	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3302	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3304	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3306	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C3307	ECUV1H180GCN	C CHIP +-2% 50V 18P	
C3308	ECUV1H220JCN	C CHIP +-5% 50V 22P	
C3310	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3311	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3312	ECUV1H150JCN	C CHIP +-5% 50V 15P	
C4001	ECUV1E104KBN	C CHIP 25V 0.1	
C4002	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4003	ECUV1H392KBN	C CHIP 50V 3900P	
C4004	ECUV1H103KBN	C CHIP 50V 0.01	
C4005	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4006	ECUV1H102KBN	C CHIP 50V 1000P	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4010	ECUV1E273KBN	C CHIP 25V 0.027	
C4011	ECUV1H822KBN	C CHIP 50V 8200P	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4015	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C4017	ECUV1H103KBN	C CHIP 50V 0.01	
C4101	ECUV1H221JCN	C CHIP +-5% 50V 220P	
C4102	ECHS1562JZ3	POLYESTER +-5% 100V 5600P	
C4103	ECUV1H103KBN	C CHIP 50V 0.01	
C4104	ECUV1H103KBN	C CHIP 50V 0.01	
C4106	ECEA1CKA220	ELECTROLYTIC 16V 22	
C4201	ECUV1E473KBN	C CHIP 25V 0.047	
C4202	ECUV1E473KBN	C CHIP 25V 0.047	
C4203	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
C4204	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
C4205	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C4206	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C4207	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C4208	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C4209	ECUV1H153KBN	C CHIP 50V 0.015	
C4210	ECUV1H153KBN	C CHIP 50V 0.015	
C4211	ECUV1H103KBN	C CHIP 50V 0.01	
C4212	ECUV1H103KBN	C CHIP 50V 0.01	
C4213	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4214	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4215	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4216	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4217	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4218	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4219	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4220	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4221	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4222	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4235	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C4236	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4237	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4238	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4239	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4240	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C4242	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4244	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
C4351	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4352	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4353	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4354	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4355	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4356	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4601	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4603	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4606	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6002	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6004	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6005	ECUV1H150GCN	C CHIP +-2% 50V 15P	
C6006	ECUV1H120JCN	C CHIP +-5% 50V 12P	
C6007	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6008	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6009	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6010	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6016	ECEA0JU471	ELECTROLYTIC 6.3V 470	
C6019	ECEA0JKA101	ELECTROLYTIC 6.3V 100	

Ref. No.	Part No.	Part Name	Remarks
C6021	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C6201	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6202	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
C6203	ECUV1H103KBN	C CHIP 50V 0.01	
C6204	ECUV1H103KBN	C CHIP 50V 0.01	
C6205	ECUV1H102KBN	C CHIP 50V 1000P	
C6206	ECUV1H103KBN	C CHIP 50V 0.01	
C6207	ECQB1H393KF	POLYESTER 50V 0.039	
C6208	ECEA1HKA010	ELECTROLYTIC 50V 1	
C6209	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6211	ECUV1H272KBN	C CHIP 50V 2700P	
C6212	ECUV1E104KBN	C CHIP 25V 0.1	
C6213	ECUV1H151KN	C CHIP 50V 150P	
C6214	ECUV1H102KBN	C CHIP 50V 1000P	
C6217	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6218	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6221	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C6222	ECUV1H272KBN	C CHIP 50V 2700P	
C6223	ECUV1H103KBN	C CHIP 50V 0.01	
C6224	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6228	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C7001	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C7003	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7006	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7008	ECEA1CKA101	ELECTROLYTIC 16V 100	
C7010	ECUV1H102KBN	C CHIP 50V 1000P	
C7015	ECUV1C105ZFN	C CHIP +80%-20% 16V 1	
C7018	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7019	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7020	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7022	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C7023	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C7024	ECUV1H103KBN	C CHIP 50V 0.01	
		COILS	
L3014	VLQSH02R470K	47	
L3016	ELESN330KA	33	
L3018	ELESN470KA	47	
L3101	ELESN101KA	100	
L3201	ELESN101KA	100	
L3202	ELESN121KA	120	
L3203	VLQSH02R220K	22	
L3302	VLQSH02R180J	+-5% 18	
L4001	ELELN153KA	15M	
L4101	ELESN471KA	470	
L7001	ELESN120KA	12	
L7002	ELESN101KA	100	
L7004	VLPS0092	CHIP	
		CRYSTAL OSCILLATOR	
X3010	VSXS0195		
X6001	VSXS0191		
		PIN HEADERS	
P1051	VJPS0645	CONNECTOR 9P	
P3001	VJPS0885	CONNECTOR 20P	
P4001	VJSS0888	FE CONNECTOR 2P	
P6001	VJPS0712	CONNECTOR 19P	
P6002	VJPS0881	CONNECTOR 8P	
P6201	VJPS0883	CONNECTOR 14P	
P6351	VJPS0712	CONNECTOR 19P	
		SWITCHES	
SW6001	VSHS0058	LEAF SWITCH-SAFETY TAB	
SW6002	VSSS0159	MODE SELECT SWITCH	
SW7001	VSSS0152	SELECT SWITCH	
		FUSE & PROTECTOR	
PR1054	ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
		TRANSFORMER	
T4101	EIQ7QF018Q		

(E8, E21, E26)

Ref. No.	Part No.	Part Name	Remarks
		PRINTED CIRCUIT BOARD ASSEMBLY	
E8	VEPS4017A	SPATIALIZER C.B.A.	▲
		MISCELLANEOUS	
JK3001	VJHS0727	A/V JACK SOCKET	
E21	VEQS0603	TUNER,UHF/VHF NR	
E26	VCRS0213	IC, HYBRID MTS/SAP AUDIO PROCESS	
		SPATIALIZER C.B.A. (E,F)	▲
		INTEGRATED CIRCUITS	
IC4501	AN7395S	IC, LINEAR SPATIALIZER	
		DIODES	
D4501	MA4091-M	ZENER 9.1V	
		RESISTORS	
R4501	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4502	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4503	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4504	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4505	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R4509	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4510	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R4515	ERDS2TJ181	180	
R4519	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4520	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
		CAPACITORS	
C4501	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4502	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4503	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4504	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4505	ECUV1E393KBN	C CHIP 25V 0.039	
C4506	ECUV1E563KBN	C CHIP 25V 0.056	
C4507	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4508	ECUV1H103KBN	C CHIP 50V 0.01	
C4509	ECUV1H273KBN	C CHIP 50V 0.027	
C4510	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4511	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C4512	ECEA1AKA220	ELECTROLYTIC 10V 22	
C4513	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C4517	ECEA1CKA101	ELECTROLYTIC 16V 100	
C4518	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C4519	ECEA1HKA010	ELECTROLYTIC 50V 1	
		PIN HEADERS	
P4501	VJHS0338	PACK PIN 8P	
		POWER SUPPLY C.B.A.	■
		INTEGRATED CIRCUITS	
IC1001	0N3131-R	IC, LINEAR ERROR V. DET	⚠
	OR 0N3161-R	IC, LINEAR ERROR V. DET	⚠
IC1002	VCRS0124	IC, HYBRID VOLTAGE DET	
		TRANSISTORS	
Q1001	2SK2971001KT	F.E.T.	⚠
	OR 2SK796.KT	F.E.T.	⚠
Q1002	2SD1330(T)		
Q1003	2SB1050(Q,R)		

(E22, E23, E31, E54, E55, E76)

Ref. No.	Part No.	Part Name	Remarks
		DIODES	
D1001	S1WBA60S		⚠
D1002	ERA34-10		
D1003	ERB12-01		
D1004	MA178		
D1005	MA858		
D1006	MA165		
D1007	EG01		
D1008	RU4YXLFM1		
D1009	EG01		
D1010	ERB81-004		
D1011	EU2YXLFH5K		
D1012	MA4051N-H	ZENER 5.1V	
D1013	MA2180LA	ZENER 18V	⚠
	OR RD18FB18M	ZENER 18V	⚠
	OR RD18FB28M	ZENER 18V	⚠
	OR RD18FB38M	ZENER 18V	⚠
D1014	MA2180	ZENER 18V	⚠
		RESISTORS	
R1001	VRESC2TK275	+-10% 1/2W 2.7M	⚠
	OR VRESC2TK275C	+-10% 1/2W 2.7M	⚠
R1002	ERF2AK2R2	W FLMPRF +-10% 2W 2.2	
R1003	VRESDASJ334	METAL OXIDE 2W 330K	
R1004	VRESE2TJ224	1/2W 220K	
R1005	VRESE2TJ224	1/2W 220K	
R1006	ERG1SJ101E	METAL OXIDE 1W 100	
R1007	ERDS2TJ103	10K	
R1009	ERG1SJ101E	METAL OXIDE 1W 100	
R1010	ERD25FJ100P	10	⚠
	OR VRESF4FJ100P	10	⚠
R1011	ERD25FJ100P	10	⚠
	OR VRESF4FJ100P	10	⚠
R1013	ERG1SJ221E	METAL OXIDE 1W 220	
R1014	ERDS2TJ562	5.6K	
R1015	ERX1SJR56P	METAL FILM 1W 0.56	
R1016	ERDS2TJ100	10	
R1018	ERX1SJR33P	METAL FILM 1W 0.33	
R1019	ERDS2TJ183	18K	
R1020	ERDS2TJ102	1K	
		CAPACITORS	
C1001	ECKDNS101KB	CERAMIC 125V 100P	⚠
	OR ECKMNS101KBD	CERAMIC 125V 100P	⚠
	OR VCKSEKD101KW	CERAMIC 125V 100P	⚠
	OR VCKSEMD101KW	CERAMIC 125V 100P	⚠
C1002	ECKDNS101KB	CERAMIC 125V 100P	⚠
	OR ECKMNS101KBD	CERAMIC 125V 100P	⚠
	OR VCKSEKD101KW	CERAMIC 125V 100P	⚠
	OR VCKSEMD101KW	CERAMIC 125V 100P	⚠
C1003	ECQU2A683MN	POLYESTER +-20% 250V 0.068	⚠
C1004	VCKSEJD332MY	CERAMIC +-20% 125V 3300P	⚠
	OR VCKSELD332MY	CERAMIC +-20% 125V 3300P	⚠
	OR VCKSGJD332ZZ	CERAMIC +80%-20% 125V 3300P	⚠
C1005	ECES2GU820DG	ELECTROLYTIC 400V 82	⚠
C1006	ECQE4474KF	POLYESTER 400V 0.47	
C1007	ECKD3A221KB	CERAMIC 1KV 220P	
C1008	ECQB1H183JF	POLYESTER +-5% 50V 0.018	
C1009	ECQB1H102JF	POLYESTER +-5% 50V 1000P	
C1011	ECQB1H223JF	POLYESTER +-5% 50V 0.022	
C1013	ECKW2H102KB5	CERAMIC 500V 1000P	
C1015	ECEA1PEE102	ELECTROLYTIC 18V 1000	
C1016	ECEA1HGE100	ELECTROLYTIC 50V 10	
C1017	ECEA1PEE331	ELECTROLYTIC 18V 330	
C1018	ECEA1HGE470	ELECTROLYTIC 50V 47	
C1019	ECEA1PEE102	ELECTROLYTIC 18V 1000	
C1020	ECA0JFE102XB	ELECTROLYTIC 6.3V 1000	
C1021	VCYSARH102KB	CERAMIC 50V 1000P	
C1022	ECKW1H102KB5	CERAMIC 50V 1000P	
C1023	ECEA0JEE101	ELECTROLYTIC 6.3V 100	
C1024	ECKW1H103ZF5	CERAMIC +80%-20% 50V 0.01	
C1025	ECQU1A562MHB	POLYESTER +-20% 125V 5600P	
C1026	ECQU1A562MHB	POLYESTER +-20% 125V 5600P	
C1027	ECKD3A101KB	CERAMIC 1KV 100P	
C1029	ECEA1HKG3R3	ELECTROLYTIC 50V 3.3	
C1030	ECKW2H102KB5	CERAMIC 500V 1000P	
C1031	VCKSLDC335ZF	CERAMIC +80%-20% 125V 3.3	
C1032	VCKSLDC335ZF	CERAMIC +80%-20% 125V 3.3	
C1033	ECEA0JEE101	ELECTROLYTIC 6.3V 100	
C1034	VCKSLDC335ZF	CERAMIC +80%-20% 125V 3.3	
C1035	VCKSLDC335ZF	CERAMIC +80%-20% 125V 3.3	
C1036	VCKSLDC335ZF	CERAMIC +80%-20% 125V 3.3	
C1037	VCYSARC222MX	CERAMIC +-20% 16V 2200P	
		COILS	
L1001	ELF18D290A	LINE FILTER 0.5A 18M	⚠
L1002	VLQS9A220M	+-20% 22	
L1003	VLQSW07D220M	+-20% 22	
L1004	VLPS0013	0.1	
L1005	VLPS0032		
		PIN HEADERS	
P1001	VJSS0645	9P	
		FUSE & PROTECTOR	
F1001	XBA2C20NU1	FUSE 250V 2A	⚠
PR1001	ICP-F38-1	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
	OR UN10015	IC PROTECTOR 1.5A	⚠
		TRANSFORMER	
T1001	ETS28K304A1		⚠
		MISCELLANEOUS	
E22	VJAS0197-F	AC CORD W/PLUG	⚠
E23	VJSS0499	FUSE HOLDER	
E54	VSCS1296	HEAT SINK PLATE, FE	
E55	XNG3	NUT, STEEL	
E76	XYN3+F12FNS	SCREW W/WASHER, STEEL	
		OPERATION C.B.A.	■
		(E)	
		DIODES	
D7801	MA4051-M	ZENER 5.1V	
D7802	MA4051-M	ZENER 5.1V	
		RESISTORS	
R7801	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R7802	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R7803	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
		PIN HEADERS	
P6301	VJSS0761	CONNECTOR 19P	
		SWITCHES	
SW6350	EVQ21405R	PUSH SWITCH	
SW6351	EVQ21405R	PUSH SWITCH	
SW6352	EVQ21405R	PUSH SWITCH	
SW6353	EVQ21405R	PUSH SWITCH	
		MISCELLANEOUS	
JK7801	VJHS0729	FRONT A/V JACK SOCKET	
E31	VJRS0091	CONNECTION PIECE	

Ref. No.	Part No.	Part Name	Remarks
		OPERATION C.B.A.	■
		(F)	
		INTEGRATED CIRCUITS	
IC6301	T47C215NF831	IC, 4BIT MICROCONTROLLER	E.S.D.
		INDICATOR PANEL	
IC6401	D17217GT-538	IC, 4BIT MICROCONTROLLER CATV	E.S.D.
IC6402	MN13801-R	IC, LOGIC RESET	E.S.D.
		TRANSISTORS	
Q6401	2SD2191TL2		
		DIODES	
D6303	MA165		
D6305	MA165		
D6306	MA165		
D6307	MA165		
D6308	MA165		
D6324	MA4068-M	ZENER 6.8V	
D6350	MA165		
D6351	MA165		
D6401	SID1010BXM	IR LED	
D6402	SID1010BXM	IR LED	
D6403	SID1010BXM	IR LED	
D7801	MA4051-M	ZENER 5.1V	
D7802	MA4051-M	ZENER 5.1V	
		RESISTORS	
R6310	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6315	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6316	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6317	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6318	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6346	ERDS2TJ470	47	
R6350	ERDS2TJ270	27	
R6351	ERDS2TJ270	27	
R6353	ERDS2TJ473	47K	
R6358	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6359	ERDS2TJ3R3	3.3	
R6401	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6402	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6403	ERDS2TJ220	22	
R6404	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6405	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6406	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6407	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R7801	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R7802	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R7803	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
		CAPACITORS	
C6305	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6306	ECA0JM471	ELECTROLYTIC 6.3V 470	
C6307	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6308	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C6315	ECA1HM220I	ELECTROLYTIC 50V 22	
C6401	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C6402	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6403	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
		CRYSTAL OSCILLATOR	
X6301	EF0EC8004T4		
X6401	EF0GC4004T4		
		PIN HEADERS	
P6301	VJSS0761	CONNECTOR 19P	
P6302	VJSS0761	CONNECTOR 19P	
P6310	VJSS0825		

(E27, E31, E34, E35, E37, E38, E60)

Ref. No.	Part No.	Part Name	Remarks
		SWITCHES	
SW6301	EVQ21405R	PUSH SWITCH	
SW6302	EVQ21405R	PUSH SWITCH	
SW6305	EVQ21405R	PUSH SWITCH	
SW6306	EVQ21405R	PUSH SWITCH	
SW6309	EVQ21405R	PUSH SWITCH	
SW6310	EVQ21405R	PUSH SWITCH	
SW6311	EVQ21405R	PUSH SWITCH	
SW6312	EVQ21405R	PUSH SWITCH	
		MISCELLANEOUS	
DP6301	VSZS0125	DISPLAY TUBE	
JK7801	VJHS0729	FRONT A/V JACK SOCKET	
E27	PNA4617M00HD	INFRARED RECEIVER UNIT	
E31	VJRS0091	CONNECTION PIECE	
E34	VMXS0581	LED SPACER	
E35	VGMS0611	LED HOLDER	
E37	VGMS0613	DISPLAY TUBE HOLDER -L	
E38	VGMS0614	DISPLAY TUBE HOLDER -R	
E60	VSSS0156	SHUTTLE UNIT	
		HEAD AMP C.B.A.	■
		(A,B)	
		INTEGRATED CIRCUITS	
IC2601	AN3809K	IC, LINEAR CYL. DRIVE	
IC3501	AN3371SB	IC, LINEAR HEAD AMP	
		RESISTORS	
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0	1	
R2605	ERDS2TJ1R2	1.2	
R2606	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3502	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R3503	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R3507	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
		CAPACITORS	
C2604	ECUV1E104KBN	C CHIP 25V 0.1	
C2605	ECUV1E104KBN	C CHIP 25V 0.1	
C2606	ECUV1E104KBN	C CHIP 25V 0.1	
C2607	ECUV1E104KBN	C CHIP 25V 0.1	
C2608	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2609	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2610	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C2611	ECUV1E333KBN	C CHIP 25V 0.033	
C2612	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2613	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2614	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2615	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3504	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C3506	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3508	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3511	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3512	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3513	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3528	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3529	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
		COILS	
L3501	ELESN101KA	100	
		PIN HEADERS	
P3501	VJSS0883	CONNECTOR 12P	

Ref. No.	Part No.	Part Name	Remarks
		HEAD AMP C.B.A.	■
		(C)	
		INTEGRATED CIRCUITS	
IC2601	AN3809K	IC, LINEAR CYL. DRIVE	
IC3501	AN3361SB	IC, LINEAR HEAD AMP	
		RESISTORS	
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0	1	
R2605	ERDS2TJ1R2	1.2	
R2606	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3501	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R3502	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3503	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3504	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3505	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3506	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3507	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
		CAPACITORS	
C2604	ECUV1E104KBN	C CHIP 25V 0.1	
C2605	ECUV1E104KBN	C CHIP 25V 0.1	
C2606	ECUV1E104KBN	C CHIP 25V 0.1	
C2607	ECUV1E104KBN	C CHIP 25V 0.1	
C2608	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2609	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2610	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C2611	ECUV1E333KBN	C CHIP 25V 0.033	
C2612	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2613	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2614	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2615	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3504	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C3506	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3507	ECUV1H102KBN	C CHIP 50V 1000P	
C3508	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3511	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3512	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3513	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3519	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3520	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3524	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3525	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3528	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3529	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3532	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3533	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
		COILS	
L3501	ELESN101KA	100	
		PIN HEADERS	
P3501	VJSS0885	CONNECTOR 15P	
		Hi-Fi AUDIO/VIDEO	■
		HEAD AMP C.B.A.	
		(D,E,F)	
		INTEGRATED CIRCUITS	
IC2601	AN3809K	IC, LINEAR CYL. DRIVE	
IC3501	AN3361SB	IC, LINEAR HEAD AMP	
IC4401	AN3328S	IC, LINEAR Hi-Fi AUDIO HEAD AMP	

Ref. No.	Part No.	Part Name	Remarks
		RESISTORS	
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0	1	
R2605	ERDS2TJ1R2	1.2	
R2606	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3501	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R3502	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3503	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3504	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3505	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3506	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3507	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4405	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4406	ERJ6GEYJ180V	MGF CHIP 1/10W 18	
R4407	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
		CAPACITORS	
C2604	ECUV1E104KBN	C CHIP 25V 0.1	
C2605	ECUV1E104KBN	C CHIP 25V 0.1	
C2606	ECUV1E104KBN	C CHIP 25V 0.1	
C2607	ECUV1E104KBN	C CHIP 25V 0.1	
C2608	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2609	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2610	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C2611	ECUV1E333KBN	C CHIP 25V 0.033	
C2612	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2613	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2614	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2615	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3504	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C3506	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3507	ECUV1H102KBN	C CHIP 50V 1000P	
C3508	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3511	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3512	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3513	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3519	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3520	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3523	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3524	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3528	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3529	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3532	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3533	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4401	ECUV1H102KBN	C CHIP 50V 1000P	
C4402	ECUV1H102KBN	C CHIP 50V 1000P	
C4405	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4406	ECUV1H472KBN	C CHIP 50V 4700P	
C4408	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4409	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4411	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4412	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C4413	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C4414	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
		COILS	
L3501	ELESN101KA	100	
L4401	VLQSH02R101K	100	
		PIN HEADERS	
P3501	VJSS0886	CONNECTOR 20P	

Ref. No.	Part No.	Part Name	Remarks
		JUNCTION C.B.A.	■
		RESISTORS	
R2531	ERDS2TJ270	27	
		CAPACITORS	
C2531	ECEA1CKA220	ELECTROLYTIC 16V 22	
C2532	ECEA1CKA220	ELECTROLYTIC 16V 22	
C2533	ECEA1CKA220	ELECTROLYTIC 16V 22	
		PIN HEADERS	
P2531	VJSS0884	CONNECTOR 14P	
		ELECTRICAL PARTS	
		LOCATED ON CHASSIS	
IC2501	AN3845SC	IC, LINEAR CAP./LOADING DRIVE	
		SUMMARY OF "E" ITEM NUMBERS	
		REFER TO ELECTRICAL PARTS LIST	
		FOR MODEL INFORMATION	
E1	VEPS6037AA	MAIN C.B.A.	
E1	VEPS6037AB	MAIN C.B.A.	
E1	VEPS6037GA	MAIN C.B.A.	
E1	VEPS6037HA	MAIN C.B.A.	
E1	VEPS6038HA	MAIN C.B.A.	
E1	VEPS6039HA	MAIN C.B.A.	
E3	VEPS01041B1	POWER SUPPLY C.B.A.	
E4	VEPS8025A	OPERATION C.B.A.	
E4	VEPS8029A	OPERATION C.B.A.	
E6	VEPS5012A	HEAD AMP C.B.A.	
E6	VEPS5011A	HEAD AMP C.B.A.	
E6	VEPS5010A	Hi-Fi AUDIO/VIDEO HEAD AMP	
		C.B.A.	
E7	VEPS0A25A	JUNCTION C.B.A.	
E8	VEPS4017A	SPATIALIZER C.B.A.	
E21	VEQS0602A	TUNER, UHF/VHF NR	
E21	VEQS0603	TUNER, UHF/VHF NR	
E22	VJAS0197-F	AC CORD W/PLUG	⚠
E23	VJSS0499	FUSE HOLDER	
E25	VEKS5520	DISPLAY TUBE/INFRARED RECEIVER	
		UNIT	
E25	VEKS5525	DISPLAY TUBE/INFRARED RECEIVER	
		UNIT	
E26	VCRS0213	IC, HYBRID MTS/SAP AUDIO	
		PROCESS	
E27	PNA4617M00HD	INFRARED RECEIVER UNIT	
E31	VJRS0091	CONNECTION PIECE	
E34	VMXS0581	LED SPACER	
E35	VGMS0611	LED HOLDER	
E37	VGMS0613	DISPLAY TUBE HOLDER -L	
E38	VGMS0614	DISPLAY TUBE HOLDER -R	
E54	VSCS1296	HEAT SINK PLATE, FE	
E55	XNG3	NUT, STEEL	
E60	VSSS0156	SHUTTLE UNIT	
E76	XYN3+F12FNS	SCREW W/WASHER, STEEL	

— MEMO —